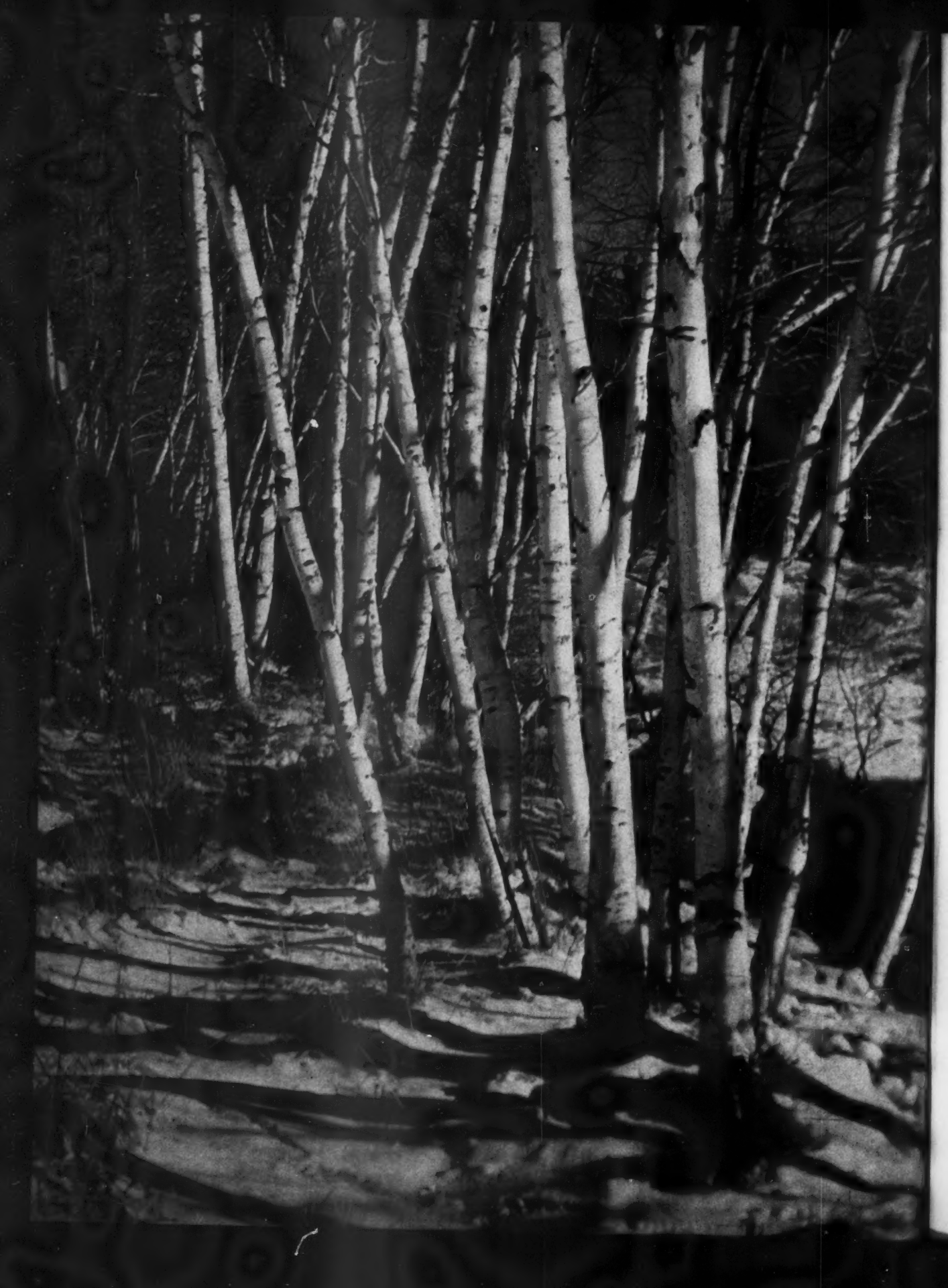
The New York State

Conservationist

February-March 1960

State of New York Conservation Department



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What price?

When I was a boy, growing up on a farm in Western New York, close by the shore of Lake Ontario, Sundays had a special significance. These were the days —from Spring until Fall—when, if no emergency spraying or fruit picking prevented, we stowed swimming suits and the picnic hamper in the family touring car and drove down to the beach to spend the afternoon. We swam, we lay on the warm sand, and toward evening, grilled hamburgs or hot dogs and brewed coffee in a tin pail, stained mahogany-brown from countless picnic brewings. Then we talked and watched the dying campfire embers until time to go home—another happy day in the treasury of childhood memories.

Our family concern on these outings was never one of place or opportunity; only of time and circumstances. We simply drove to the end of any convenient country road and there, stretching away on either side, was empty beach to be shared, on rare occasions, with perhaps one or two other families, similarly bent.

Nor was the pattern different for other outdoor recreations. In the Fall, we hunted on our lands and on the lands of our neighbors; they hunted their lands and ours. In the Spring, we fished where we thought the fish would bite, with never a question of access. If we had a boat, we launched it wherever it was most convenient to our cruising objective of the day.

I have revisited these boyhood haunts in recent years. Now the country roads are paved; the traffic heavy on Sunday afternoons. Now they end at cottage colonies. Where once were empty beaches, are steel gates and signs that read: "Private Road—No Trespassing," or "Lake Vista—Choice Lots for Sale, See Johnson and Swift—Realtors." Now, where, as a boy, I hunted pheasants and rabbits —"Private Land—No Trespassing." And the road that led to the marsh where in the Spring we fished for bullheads— "Private—Closed to the Public."

And what have we gained? A magnificent system of highways, ever more glittering cities, sprawling suburbs, skies criss-crossed with aircraft, mechanized farms, goliath industries, televised spectator sports and a swelling demand for "Miltown."

We're not impressed with this bargain; we think we are paying too high a price. We think that our capacity to create, to survive and to prosper is linked to our natural resources, not only as the basic wealth, but as a vital recreational need of which we as humans must not be denied.—Editor

A Touring Conservation Assembly Program

–An Approach to Improving Conservation Education in New York Schools

by David L. Hanselman

KNEES trembling just a bit and perspiration on the palms of my hands, I waited in the wings of the stage as the Jasper High School students filed into the auditorium. Many thoughts raced through my mind as I waited to present my first conservation education assembly program, but never that this was to be the first of almost 200 performances before 90,000 high schoolers. Yet, this is the experience I have had since Sept., 1955.

Encouraged by the interest of Dr. Gustav A. Swanson, Dr. Richard B. Fischer and several other Cornell professors, this pilot program developed into a three-year study, shedding new light on the old problem of getting more conservation education in the public schools.

Many states throughout the country have forged ahead and are now including definite and worthy programs of conservation instruction in the regular curriculum. Unfortunately, New York State includes very little conservation training, save in a few outstanding schools where especially interested teachers have started their own programs.

Why Conservation Isn't Being Taught

Through teacher interviews and survey questionnaires, it was found that only about 15 per cent of the State's junior and senior high school science* and social studies** teachers try to integrate conservation principles and practices with other units of study.

Although most teachers are receptive to the "idea" of giving greater attention to conservation education, they gave these reasons for not following through with better classroom studies:

1—The subjects required by the New York State Regents are extensive and specific; little time is left to spend on other topics. Knowing the exact subject matter to be covered on the State's final Regents' examination, many teachers teach solely for the Regents. Until conservation gains more importance as a Regents' requirement, they do not feel it worthy of more class time.

*Seventh, eighth and ninth grade general science and biology teachers.

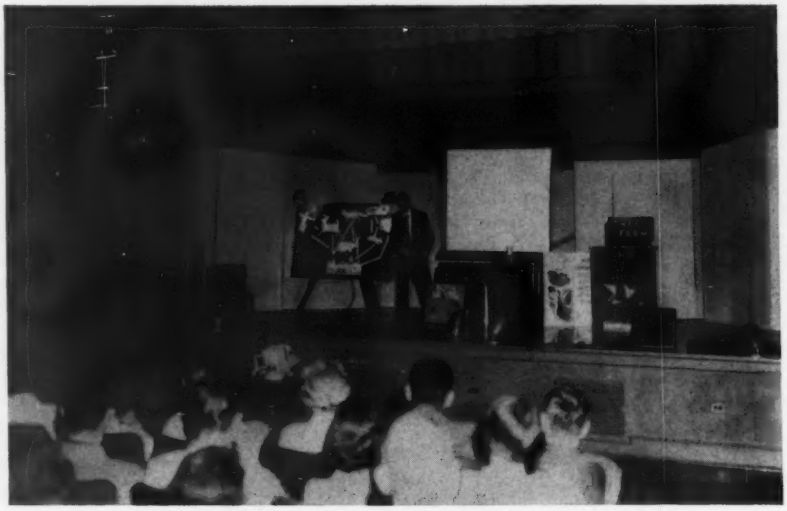
**Social studies, citizenship, world and American history teachers.

An example will better illustrate this point. One Broome County biology teacher related a story that had unfolded outside the classroom window during the late Winter. Deer began to congregate on the south-facing slope. As the snow grew deeper, their radius of movement became less and less. The existing food supply soon diminished and starvation was evident. On warmer days these deer ventured down into the school yard and two died within a stone's throw of the school. Although this teacher was fully cognizant of the teaching potential of this drama, the opportunity to teach a vivid lesson in wildlife management was passed up. The teacher did not feel that she could deviate from the Regents' requirements for two or three class periods.

2—Many teachers, and especially the older teachers, frankly admit that they lack the technical background to teach conservation. Even the teachers who have been out of college for only a year or two often report inadequate training along these lines.

3—Textbooks do not include satisfactory units or chapters dealing with conservation. And, although some of the newer texts show improvement, the old books are used until they are completely worn out. Supplemental materials detailing resource management problems inherent to New York are few and far between, or at least not easily available.

There is still another reason for poor conservation training; partly the result of the aforementioned reasons: Too many teachers are indifferent about conservation; their only teaching goal appears to be getting students through the course. These teachers are inclined to "pass the buck" saying that conservation, if it's going to be taught, should be a part of some other subject—a subject someone else teaches.



The author, amid conservation props, stages an assembly program

Getting Started

The idea of appearing before large groups was not completely foreign as I had entertained as an amateur magician for several years. Of all things, I was determined not to be boring, dry or "square." High school students have a way of letting an assembly speaker know when this is the case! Therefore, I surrounded myself with a stationwagon load of demonstrations, colored slides, special lighting, tape recordings, gimmicks, gadgets and magic tricks—all designed

to make the assembly program interesting and entertaining, as well as instructional.

Three successive grants from the New York State Conservation Council and two from the National Wildlife Federation defrayed most of the expense. From the beginning the program proved popular in the schools; it was presented without charge. The only restrictions were that the school administrators were to permit the science and social studies teachers to participate in the experimental teaching and testing part of the study.

Each co-operating teacher received a suggested outline for teaching conservation in addition to a packet of selected conservation reference booklets. From this the teachers devised their own units of instruction which were to be given just prior to, or just following the assembly program. Before they began this study and before the assembly program, the co-operating teachers administered a 50-question multiple choice examination. Then after the assembly and related instruction, another exam.—basically the same—was administered. The answer sheets were returned to Cornell for electronic grading and data analysis.

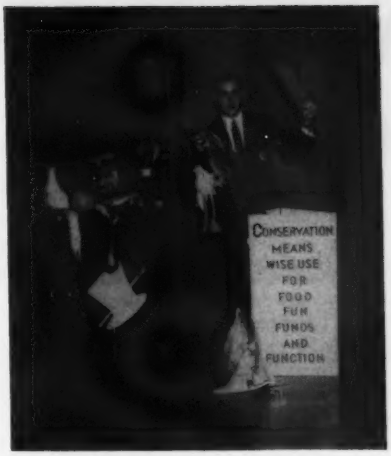
The assembly program itself, while informative, was most valuable when followed by classroom discussions and further teaching. Its values might best be listed in this order: 1, To spark student interest in the study of natural resources management; 2, to create a favorable attitude for and to stimulate further classroom study of conservation; and 3, to teach some of the most basic principles of natural resources management.

Some Assembly Program Results

Attitude, while difficult to express in percentages was one of the most significant changes. Both teachers and students were "more interested in conservation" as a result of the experimental program. Teachers who had never before taught the subject found that they were capable and stated their intent to teach units of conservation in future years.

Asked if they would avail themselves of such an assembly program if it were made available to their school every other year, 93 per cent of the teachers answered in the affirmative.

The nearly 2,000 students sampled in the data analysis showed an average improvement of 33.4 per cent between the two tests; the first test given before the assembly program and classroom instruction, and the second following the assembly and teaching. It was interesting to note that boys got higher scores on both examinations, but that the girls showed the greater improvement between the first and second testing.



Some products of the land

As might be expected, farm youth and small town children turned in higher scores than those students residing in larger cities. Of the students queried, the 41.8 per cent who stated their intent to go on to a 4-year college did strikingly better on both examinations than those who were planning less extensive career training.

The relationship between various outdoor interests and knowledge of conservation matters proves one thing. Those, who are not interested in the out-of-doors, know less about their natural resources and management. However, there is no significant difference shown between those interested in fishing and those interested in camping and hiking or those interested in hunting and others preferring nature study. According to results tabulated from the "student background information sheet" (filled in at the time of the examination), we know that 65 per cent of the families participate in hunting and/or fishing. Yet the students themselves report an even higher personal interest. Forty-seven per cent said they enjoy hunting; 60 per cent enjoy fishing. This dramatically shows the increasing interest in outdoor recreation and should serve to remind us that hunting and fishing pressure will increase in future years. This next generation of nimrods and anglers must be prepared to help fulfill their own demands, but their present knowledge of conservation is inadequate even though the attitude is favorable.

Classroom follow-up is important

Outside organizations evidently play an important part in the student's knowledge of conservation. But at best, the Boy Scouts or any other organization cannot be expected to completely fulfill these educational needs. The following table summarizes the relative effectiveness of some youth organizations:

Non-school Organizations	*Per cent of Students Belonging*	*Average Score Before Assembly or Instruction**
Audubon Society	6	27.7
Boy Scouts	30	27.7
Explorer Scouts	13	30.0
Girl Scouts	32	24.4
Future Farmers	3	27.9
Attended N.Y.S. Cons. Camp	3	30.8
4-H Club and Camp	10	25.5
None of these	24	24.5

*Average number correct out of a possible 50

Setting Our Goals

A discouraged conservation educator once remarked that it would be easier to establish a herd of American Bison in New York than to establish conservation education in the State's schools. I don't believe this is true, but it's certain that any significant changes will not occur overnight.

Most teachers are not apathetic; they believe that more conservation should be taught. When encouraged to do so, they will attempt bigger and better units of conservation in their classes. Teachers know and admit their weaknesses and readily accept supplemental help.

Here are four goals to which every devout conservationist should be dedicated:

1—Better teacher training both in college and through in-service training programs such as Cornell University's Arnot Teachers' Workshop, and local school or county workshops.

2—Teacher encouragement and help by their superiors in initiating new programs of conservation. Individuals can help by lending their support and expressing their interest to local boards of education.

3—The State Board of Regents must recognize and promote conservation education. Conservation clubs and individuals should be ready to back—financially if necessary—further studies and research to determine and test various conservation curriculums.

(*Continued on page* 33)

The Adventure Approach to Conservation Teaching

by Arthur W. Silliman

TWENTY years ago, little Bramble Brook flowed happily all year around from its densely wooded swampy head waters down past the Ardsley school playground to Westchester's Sawmill River, on its way to the sea. Shrubs and wild berries grew on its banks; birds and small animals drank of its water; school children enjoyed lunch in its air conditioned coolness, and vied to make the biggest splash to upset wax paper boats made from sandwich wrappings. After school, they fished for minnows and hunted for turtles.

Today, Bramble Brook is little more than a storm drain, alternately almost dry or tearing at its banks with torrents of muddy water. What has happened to Bramble Brook and thousands of other similar little brooks, and what difference does it make now that children have television and don't need brooks to splash in?

As the Ardsley school on Bramble Brook grew, a larger playground was needed. Bite by bite, cut and fill, a giant power shovel pushed the playground from the bank of Bramble Brook back into the hillside. The steep bank was planted with rye, but it did not grow dense enough to disperse the rivulets headed for Bramble Brook. Little grooves grew into raw erosion. Yards of unwanted loam washed over the playground. Bramble Brook ran muddy for months with scholarly earth.

Now here we have two real teaching situations. Undoubtedly old Socrates would have deserted his dog house, and Mark Hopkins left his log to involve pupils in problems like these. "Pupils learn by reacting, not by being passive targets for printed or spoken words," said Prof. Don Ross, with his unusual ability to translate and concentrate voluminous research into practical language. Too much of our instruction, both as parents and as teachers, is concerned with pressing unwanted information upon reluctant listeners.

But information alone has no motive power, except as it is triggered into action by an emotionalized attitude. The deeper the understanding and feeling through involvement in a problem, the greater is the possibility of appropriate action. In other words, what avails it to observe that Bramble Brook is becoming only a storm drain, or that the playground is being ruined by erosion unless we are disposed to do something about it, or at least intelligently support measures of conservation?

For hundreds of thousands of years, man lived so close to the forests, the fields and the streams that the lore of Nature was woven into the very fabric of his life. In the calendar of eternity, a few generations of urban living can do little to modify the fundamental thought, action and behavior patterns developed over the centuries. Psychologically, we are assured by Dean George D. Stoddard, the outdoor adventure approach is sound. In the words of William James: "Make nature your ally."

The outdoor adventure approach to conservation teaching captures the interest of pupils, leads to knowledge, to understanding and finally to the emotionalized attitudes that support and initiate conservation activities. Properly directed, it can channel some of childhood's excess physical energy into constructive activities instead of disciplinary problems.

The light of a torch is still the symbol of leadership and the glow of a campfire still signifies security, even when transferred to a fireplace. We still yearn to plant in the Spring time and garner in the Fall, to hunt and to fish, although we realize we could buy the vegetables, fish and game with far less expenditure of time and money. We dream over seed catalogs with their entrancing pictures of Nature's bounty, and spend more than we should for hunting and fishing gear and for walloping a little ball over the hills and fairways.

Surely there's a secret urge, psychologically understandable, deep down in our souls, that leads us back to the woods, the fields and the streams. Too bad we haven't realized this more clearly for the sake of our children. A few generations cooped in classrooms has not changed the basic design of childhood's interests. Just as the human embryo in its development recapitulates the evolution of man, so it seems that the urge for the freedom of the outdoors is less inhibited in childhood than in later years. Isn't a park, a brook, a big tree or other symbol of Nature a treasured part of your childhood memories?

Children crave adventure, exploration, new places, new meanings, new friends, the freedom of wide open spaces. Children, as all parents, teachers, camp counselors and baby sitters know, have endless urge and energy. Like Bramble Brook rushing down the hillside, this energy can be directed but not stopped.

Here is where the adventure approach comes in—to utilize this tremendous urge and energy for effective learning. Conventional methods which fail to use this natural energy often find it diverted into disciplinary difficulties, with plenty left over to harass the teacher, decorate the toilet rooms and break the street lights going home.

After thirty years of experience as teacher, counselor, principal, administrator and camp director, your author knows by abundant experience that the outdoor adventure approach as described will work. Through the years, he has accumulated over a million boy-and-girl miles of adventure education from half-hour nature walks to thousand-mile rugged automobile camping trips. Adventure education, he believes, is the most promising field in education today; because like yeast, a little leavens so much.

Once a child realizes that learning is a great adventure, books become truly

Thousands of primary and secondary grade teachers in our schools are well aware of the vital role that natural resources play, and will play, in the lives of the children they teach. These teachers recognize the need for conservation education but, as David Hanselman points out in the foregoing article, they are pressed for time, many lack technical background, and text reference material is skimpy to non-existent. To such conscientious, but hard-pressed educators, we commend the accompanying article. Mr. Silliman's approach to the problem has one thing to recommend it—it works!—Editor

meaningful and research a pleasure. Light a pupil's torch, and he will find his own way! The adventure approach is the greatest torch lighter yet.

There are many adventure approaches to learning and all great teachers make learning an adventure and not necessarily outdoors. Search your memory for your great teachers and try to analyze how they inspired you. But of all the adventure approaches to learning, the outdoor adventure approach is the easiest to administer and conservation is one of the subjects to which this approach is particularly adapted. Conservation, however, should not be taught as a subject apart. It is too intimately bound up with many subjects; with life itself. Erosion, for instance, could be affected by the geography, the geology, even the zoning restrictions of the area. Kindergarten children could grasp the idea of damage and some means of control; a ninth or twelfth grade social studies class might see economic implications beyond the understanding of second-graders. Whether the teaching is called conservation, geography, science, social studies or physical education depends on the focus of the approach or the class scheduled for that period. The lesson might even go under the name of art or English, used as the vehicles of expression. This is just a suggestion on "Where do I find the time?" Anyhow, conservation becomes more meaningful as it is related to other subjects and is woven into the whole fabric of understanding the environment.

Now that we have briefly explored the background for the outdoor adventure approach to conservation teaching, let's get down to some of the practical problems of organization:

"Teaching Stations" in Advance

A teaching station is any appropriate spot that will interest children, stimulate them to ask questions and serve as a springboard for worthwhile instruction. Examples could be a bird's nest, weeds pushing up through a pavement, trees growing on a rocky ledge, a hillside raw with erosion, etc. . . . Let pupils assist the teacher in spotting areas related to the subject at hand. Here's an opportunity to give importance to some pupil who needs encouragement; an adventure in itself to him. Pick enough stations so you don't have to linger painfully at those that do not appeal. Be alert and adaptable to take cues from the children. If the pupils are old enough, use some kind of an individual guide sheet to maintain the continuity of the project and prevent the pupils from darting in all directions at once. Eventually, the project should come to flower in a booklet with a map, a general description of the project and individual written follow-ups which enable the able and ambitious pupils to proceed far above their grade level, giving the teacher more time for those who need help to interpret their findings. Sometimes the booklets are a group project; sometimes committees are responsible for certain sections. In general, individual booklets, plus a class exhibit, seem to give the best balance between individual and group work.

The Preparation For The First Trip

Suggest to the class the possibility of an outdoor expedition, like exploring Bramble Brook to its source to see why it is slowly drying up, or surveying the playground for Arbor Day activities to help the eroded bank. Don't push it too hard. Let the motivation incubate. Mention duties that must be finished before full consideration can be given to an outdoor project. When the idea builds up some pressure, check-list with the pupils the background information they should have, and the gear they should take along, like a map, a compass, a notebook, jars for collecting, etc. Assign some research and collection responsibilities to all, with specialized assignments to volunteers and to shy pupils. Get everyone in the act. Much of this can be done on in-between or non-class time. When pupils are interested enough to use their free time to advance a project, the adventure angle has entered. Considerable class and group discussion with acceptance of all pertinent pupil suggestions builds up an atmosphere of good feeling and "togetherness." Now is the time to do a great deal of background teaching, while the pupils are in a receptive mood, enjoying the delightful anticipation of a field trip they have helped to plan. This is the spirit and the start of the "adventure approach." Don't short circuit it!

Two Methods Contrasted

The author's first camp job was hikemaster in a small Boy Scout camp. It was his duty every Wednesday to take all the boys on a 14-mile hike, so that the cooks and other counselors could have their day off. The hike wasn't specially geared to the campers' interest, except for a few who needed it for advancement in rank. No attempt was made to describe in advance the delights of mountain hiking or plan for maps, explorations or collections. It wasn't adventure, it was just routine, patterned after the author's recent army experience. Even the food for lunch showed no imagination — thick sandwiches, canned fruit and the inevitable "bug juice" or fruit flavored drink diluted to transparency. No wonder morning sick call on hike day disclosed an amazing incidence of headaches, stomachaches and footaches; but only a demonstrable disability excused any one from the hike. As a result, the object of most of these hikes was to "get it over with" as soon as possible and return to camp. It was soon evident to the hikemaster that many of the boys were being conditioned for life against hiking, so he decided to try a new approach with the next group.

Instead of arbitrarily announcing Wednesday as hike day, he spoke at campfire about the early Indian inhabitants of the area, and about the Outlaws' Cave. He exhibited an Indian arrow head, and a trail map showing caves and shelters, and casually mentioned that he'd like to assemble a group of good campers to follow up these clues. Like the Pied Piper, he was followed from the camp fire by a string of interested boys. He allowed himself to be "persuaded" to head an all-day expedition that Wednesday, limited to those who could secure their tent counselor's recommendation as good campers. (This gave the tent counselors some appreciated leverage to raise their standards.) By Wednesday, practically every boy was qualified and ready with an assortment of gear from rock hammers and climbing ropes, to snake kits, compasses, canteens and specimen jars. Remember, teachers, nothing makes a pupil feel more involved in a project than to carry some specialized equipment and be responsible for its use. Lunch, too, was an adventure. Bacon was cooked

on heated rocks, potatoes baked in tin can ovens, and blueberry pancakes deliciously browned in messkit skillets over a bed of coals—real adventure, because related to elemental needs.

Time Needed

In a school situation, the actual adventure time outdoors can take from a half-hour to a half-day, a week or more. The author has found that an hour plus the lunch time is very effective. Roasting a few frankfurters adds immensurably to the project. It welds the group together. At least two expeditions a year are minimum; one a month would be a good goal. Often these projects could be scheduled as part of the activities of another group, like a science club. As the basis for a composition, a letter, a newspaper article, or an oral English report, time for the expedition might be contributed by the English department. A seventh grade visit to Ticonderoga, sponsored by the Social Studies department, was combined with a visit to the Conservation Department's tree nursery at Saratoga.

Several schools in Westchester County, for instance, run a science and social studies camp at Croton Point on the Hudson River for grades 6, 7 and 8 and for tenth grade science. This site is about 20 miles from the participating schools. Here the County Recreation Commission operates low-cost camps during the Summer. The full camp facilities, including cabins, kitchen, refrigeration and spacious recreation hall are available to schools at token cost during Autumn and Spring. The usual pattern is for a class or two to come for a week or half week with their homeroom or subject teacher. A camp mother, not necessarily a teacher, helps the rotating pupil Committees with food preparation and home making duties, making this project a complete living experience. No country club service here! The camp director, usually a teacher, is responsible for the over-all planning in consultation with the school administration, teachers, pupils and camp mother and helps interpret the program to P.-T.A. or parent groups. Incidentally, the author has found the understanding of lay groups like P.-T.A., service clubs, American Legion Posts, etc. is readily gained for the benefits of the outdoor adventure approach; faster, in fact, than teachers can be found to put it into practice. The camp director is familiar with the teaching stations and the lore of the area. He assists in the teaching, and in enlisting specialists from the school and community for occasional help. An amateur astronomer will bring his telescope for star study, an Audubon enthusiast will lead a bird walk, the science teacher may be willing to conduct a geology hike. "Old timers" in the area are flattered to be interviewed, and are often a source of unusual information (and misinformation) giving the pupils practice in evaluating evidence.

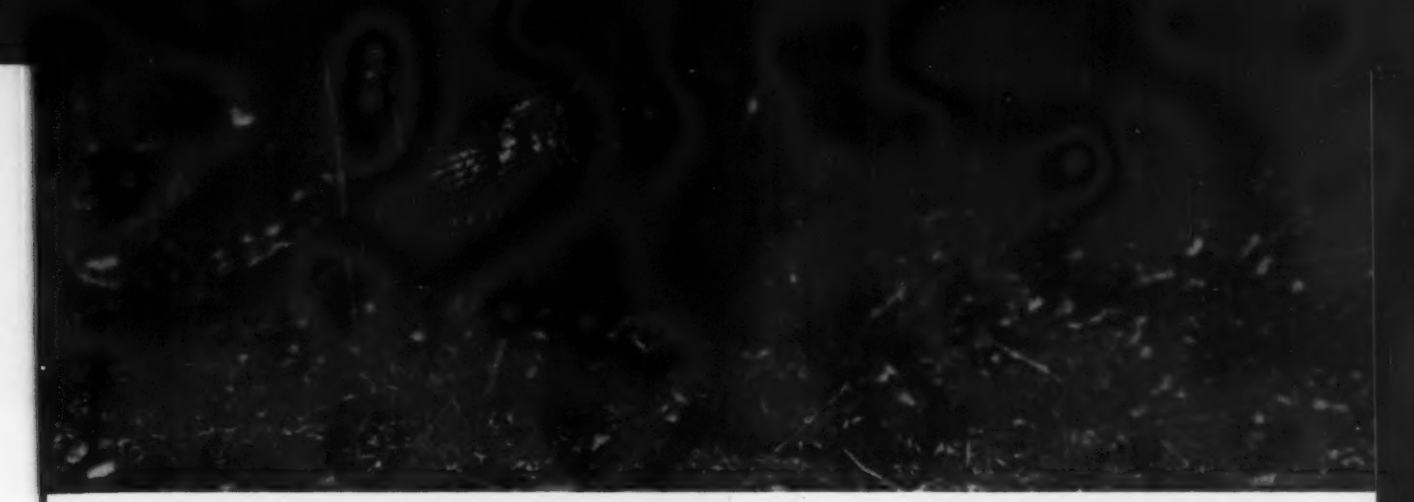
For schools that are not ready for overnight projects, an all-day field trip to Croton Point or similar area abounding in teaching stations, provides many of the adventure aspects of an overnight trip without the responsibility and expense of an extended stay. The homeroom teacher can conduct such a project with the aid of one other teacher and assemble enough clues for many interesting lessons and much research back home.

Don't fire the heavy artillery first! Generally speaking, it is better to start with projects involving only a period or two outside the classroom, increasing the time as values appear. Some classes seem more susceptible to the benefits than others. The general rule is to operate up to the point of diminishing returns. Two years ago, Bob Falvo, seventh grade teacher in the Ardsley school, finally worked up to the point where he took his whole class in a big touring bus on a 4-day, 800-mile trip up the Hudson Valley, around the Adirondack Mountains to Syracuse, through the Rip Van Winkle country and back to Ardsley on the Thruway in the study of typical regions of New York State. For months the class studied, discussed, researched, wrote letters to chambers of commerce and State agencies, compiled check lists, mapped routes and hammered out an itinerary. As a matter of fact, before they started, they knew more about New York State than any previous Falvo class. In the seventh grade, the course of study in history, geography, conservation, etc. is based upon New York State. The Board of Education paid for the bus and strictly educational expenses; the pupils paid for their food and personal expenses. The touring bus carried their tents and sleeping bags, and was followed by a teacher-driven station wagon which served as "chuck wagon," shopping car and emergency vehicle. At Albany, the group visited the State Education Department Museum, with special attention to the Indian exhibits and the mammoths and mastodons in relation to the Ice Age. They thrilled at the wonderful wildlife dioramas, each of which told a conservation story. At Saratoga, they toured the State Tree Nursery. They had a look at the mineral springs, where the first taste convinced them of the curative values. At North River, they prepared supper and spent the night in real log cabins chinked with moss. Giant whispering pines lulled them to sleep and provided a springy carpet of pine needles for a morning stroll. They breathed deep of the spicy atmosphere, absorbing an understanding of the peace and relaxation offered by the deep woods. In terms of a life time, this was a tremendous discovery for some of the pupils. The need for fire precautions was very evident here. A few pertinent questions by the teacher crystallized the feeling that it would be a sacrilege to desecrate such a scene of natural beauty. Throughout the trip, abundant practice was given in carefulness with fire, leaving clean camp sites, proper use of knife and hatchet, and consideration for the next camper.

Natural resources were studied in relation to the garnet mines of Gore Mountain; then the trip continued to the Adirondack Museum at Blue Mt. Lake for background of the lumber industry and the beginnings of outdoor recreation when the Adirondacks were relatively inaccessible. Moving southwest along the chain of lakes, the group stopped to inspect typical State campsites and talk with campers and caretaker. Near Syracuse, they enjoyed the hospitality of the Shawnee Day Camp where they had assistance in pitching their tents. At Syracuse, they visited the Salt Museum and learned how this industry had influenced the development of this region. A guided tour through the College of Forestry brought new understanding of the importance of trees in ways never before related to their daily lives. Next conservation stop was the Farmers' Museum at Cooperstown, and that night the group sampled the facilities of the North Lake State campsite in the Catskills. Next day they returned to Ardsley via the New York State Thruway, with a final impression of rugged country and majestic Hudson River.

Nearly two years have passed since that memorable trip, but it is increasingly apparent that the lessons learned were indelibly inscribed, that bonds of fellowship were created and a new understanding of the relation of school to life was illuminated.

Few schools can hope to emulate this trip at once, but the same results on a comparative scale will attend even a half hour's expedition in the same spirit of adventure and planning. Pupils can learn to relate books to life as they see it, to take pride in leaving a clean trail, and be hurt by evidence of wanton mutilation of trees or public property. In these days of ever increasing pressures and tensions, the outdoor adventure approach may start many children on lifelong interests and hobbies of forest and stream, seashore and mountain, conducive to physical health and mental relaxation—conservation of our human as well as material resources.



Our First Wild Turkey Season

by Richard E. Hyde, *Dist. Game Mgr.*

New Yorkers Recapture a Touch of Pioneer Days

THE first legal hunting of wild turkeys in New York State in recent years is now a matter of record following the opening of an experimental three-day season (October 5-7) in Allegany and Cattaraugus counties.

Since the re-appearance of wild turkeys in New York's Southern Tier in 1950 their numbers have increased steadily, and although the population was supplemented by game farm stocking for a few years, no stocking has been done in this area since 1954. The birds have done very well on their own. Good weather during the 1959 nesting season produced enough successful broods to make a season possible.

Deciding upon the length, timing and nature of this first wild turkey season in New York posed several unknown factors. We didn't know, for instance, how many sportsmen would be attracted, nor were we sure of the reaction or susceptibility of our hitherto unhunted turkeys. So we played it conservatively with a short season, set early enough in the Fall to preclude the possibility that a tracking snow might result in a too heavy harvest.

As planned, the weather and hunting conditions were in favor of the turkeys with opening day temperatures in the low 80's. Also, heavy foliage and a dry noisy woods made hunting difficult but it was a beautiful day to be out-of-doors.

Hunting pressure was as high or higher than anticipated. In areas of good turkey range, sportsmen were afield in numbers comparable to a Southern Tier deer season. By the end of the season the Allegany State Park, one of the most heavily hunted areas, had issued more than 2,000 hunting permits — approximately 500 more permits than were issued on the opening day of deer season last year. The heavy hunting pressure was pretty well washed away on the second day by steady rain in the late morning and afternoon. Although hunting conditions were the best on the third and last day very little hunting was done except by a few late afternoon concentrations of local afterwork hunters.

When the smoke cleared and the dust settled at the close of the season, Department personnel manning check stations and road patrols in the heavily hunted areas, had tallied 125 birds that were known to have been taken. The total kill for the two-county area is estimated at between 250 and 300 birds. This number is less than the 1959 increment or brood production, so it would appear that the turkeys have successfully won their first engagement, as should be the case.

A kill of up to 300 birds for this army of hunters does not reflect a very good hunter-success ratio, if a successful day afield is measured only in terms of killing a bird. But for those, who had the thrill of seeing or hearing a turkey, or possibly even getting a shot, this season should have been worthwhile.

The odds for getting a turkey are pretty long; even more so than in deer hunting because of the wary nature of the birds and their much lower level of abundance. Sportsmen should not expect turkeys to be much more abundant in future years, at least in the better areas, than they were this year. Moreover, it is a safe bet that the surviving birds will be wiser because of their experience.

A number of hunters should also be somewhat wiser about turkeys and hunting methods as a result of the season. At least one man using a turkey call gave up when he attracted only hunters to his stand. Another nimrod took a shot at what he thought was a "chicken" hawk (a highly illegal practice at that) and dropped what turned out to be a nice turkey. Probably the first turkey to be shot in self-defense was taken by a hunter who thought he was being charged by a bear. The turkey had run out from under a log directly toward him.

What about the future? Will there be a season next year?

A more accurate estimate of the surviving population will be possible this Winter through field observations and live-trapping work. This will supplement age and sex composition information obtained from the check stations. The amount of illegal kill that may, regretably, take place this Winter as well as the success of this year's breeding season, will be the two key factors deciding the fate of a season this year.

In the immediate future, at least, it is unlikely that a season could be held during a year when brood production is lost through prolonged periods of cold wet weather during May and early July.

This turkey season from most viewpoints was a successful one. The turkeys have proven that they are well-established in the Allegany-Cattaraugus area, and are abundant enough to provide at least periodic hunting opportunity. The fact that the turkey is here to stay should be good news to the sportsman who, after trying once, still has the interest, patience and fortitude to take on the turkey again.

This obviously will not be a sport for every small game license holder, but we are sure that those who bagged some of the prime 20-pound gobblers will be back for the next season. And so will many who didn't.

Albert T. Davis

by Edward G. West,
Forest Surveyor

ALBERT TATUM DAVIS, Forest Ranger, Forest Surveyor, Forester, Chief Forest Surveyor—retired on September 1, 1959, after 46 years with the Conservation Department. These years span a varied and colorful career in forestry—one that is permanently recorded in the annals of the Department, in the survey marks of the Adirondacks and Catskills and in the hearts and minds of his associates and friends.

The law creating the Forest Preserve was just three years old when, on February 8, 1888, Al. Davis was born at Saranac Lake, only a short distance from the shores of Lower Saranac. His father, Henry Davis, was an Adirondack guide and Al's basic training as a forester actually began before he was able to travel on his own power.

He attended school in Saranac Lake, graduating as valedictorian from the Saranac Lake High School in 1905, and entered Colgate University in the Fall of 1906, graduating with a B.S. degree in 1910. He spent the next two years teaching science and mathematics at University School in Bridgeport, Connecticut.

During Summer vacations from college, he guided fishing parties and also conducted parties by guide-boat through the Fulton Chain from Saranac Lake to Old Forge.

It was while he was at Colgate that he met Martha Tew, of Hamilton, whom he married on September 20, 1911.

On July 1, 1913, Al. accepted his first position with the State, when he was appointed as Forest Ranger at Lake Placid. In November of that year he joined D. C. Wood, Al. King and Pete Gaylord on a survey of Township 5, Old Military Tract, near Chazy Lake. On April 1, 1916, he took charge of a survey crew under the direction of Al. King in running the north line of Jerseyfield Patent. His first appointment under civil service was on February 1, 1918, as Forest Surveyor and Draftsman. Shortly thereafter, his forestry career was interrupted by a tour of duty with the Field Artillery in World War I.

On being discharged from the Army, Al. Davis was assigned to surveys in connection with the acquisition of land in the Catskills. These surveys included areas in Mink Hollow, Platt Cove, Haines Falls, Spruceton and Watson Hollow.

While the work that Al. Davis has performed has been essentially the re-establishment of the boundary lines of the Forest Preserve, previously run by John Richards, William Cockburn and others 150 to 175 years ago, he has, on many occasions, been called upon to set aside his transit and take time out to supervise the planting of more than nine million trees, make appraisals of land value, build dams and docks, analyze and make recommendations on hundreds of matters involving legal principles and departmental policy.

Mention is made here of just two of the many dams he built—cited not so much for the engineering principles involved, but as typical of the contribution they all make each year toward the pleasure of thousands of vacationers. One is the dam at Lake Durant, just east of Blue Mountain Lake on Route 28. Here, one crosses, almost without realizing it, the divide between the Hudson and St. Lawrence watersheds. The other is the one that made North Lake the most poplar campsite in the Catskills.

Al. Davis has made surveys in all parts of the Adirondacks and Catskills. He knows their mountains, streams, lakes and woods, their patents and allotments, their tradition and natural history intimately—he has lived with them. His research has enabled him to accumulate a vast amount of data on the early land grants and patents. He has studied the notes and records of John Richards and other ancient surveyors until he knows these men as well as if he had traveled with them instead of in their footsteps one hundred and fifty years later.

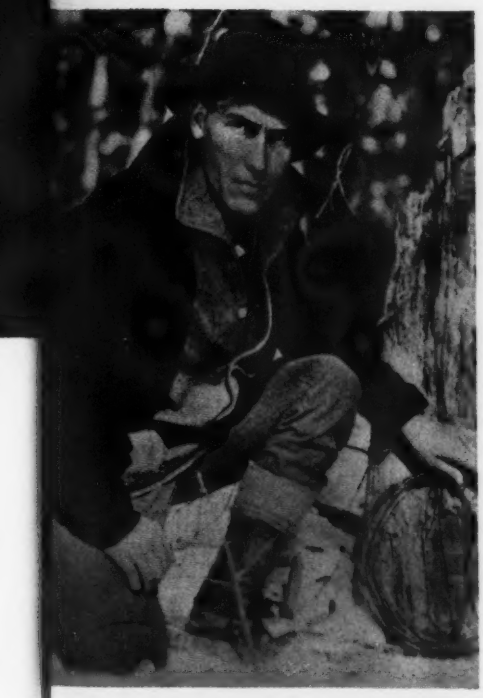
In October, 1952, in order that the Department might receive fuller benefit of all this knowledge, W. M. Foss, Assistant Commissioner for Lands and Forests, requested Al. to take charge of the Department's surveying program and di-

"I lifted up mine eyes again and behold a man with a measuring line in his hand."–Zechariah 2:1

On a day in March, 1919, while I was leading a horse, hitched to a buckboard over the old, abandoned road through Mink Hollow Notch in the Indian Head Range of the Catskills, "I lifted up mine eyes and beheld the man with a measuring line in his hand." It was my first meeting with Al. Davis. He was engaged in surveying the Wilbur Purchase in Great Lot 25 of the Hardenburgh Patent.

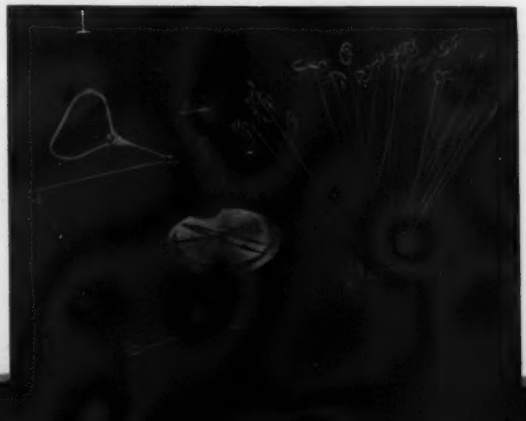
I started with the Department a few days after that meeting and have been in rather close contact with Al. Davis for the past 41 years. I was his transit man on the Whiteface Mountain job mentioned in the accompanying article. I was present when the picture of Jim Goodspeed was taken while boxing the Richards' blaze on the north line of the Whiteface Mountain Tract. This was before the Memorial Highway was built and we reached the mountain and our work by walking, sometimes from Forestdale to Connery Pond and return, either over the top of Whiteface or around it. Often, we would take some extra grub along and stay on the line for a night or two.

It is with considerable happy reflection that I look back on my association with Al. Davis. I owe him a great deal for the inspiration and help that he has given me.
—EDWARD G. WEST, *Forest Surveyor*



A. T. Davis in 1918. The rotted spruce stub still bears the blaze of John Richards' survey of 1820

Jim Goodspeed, Al's famous axeman, "boxes" a John Richards' 1814 blaze on north line of Whiteface Mt. tract



The open-sight magnetic compass and surveyor's chain were standard equipment in early days; now supplanted by transit and the steel tape

rect the activities of all the Forest Surveyors. He continued in the capacity of Chief Forest Surveyor until his retirement last year.

When asked if there had been any particular assignment that gave him more satisfaction than any other, he answered without hesitation that it was the 1921-1922 survey of the Whiteface Mountain Tract. The mission was to find the north line of the tract and the line between Lots 4 and 5, as run by John Richards in 1814. The utmost importance was placed on the results and before the survey was finished, Surveyors E. M. Merrill, A. H. King and George E. Wilbur were called in. The details of this big survey and how it was brought to a satisfactory conclusion are too lengthy to tell here. Suffice to say that Al. Davis, at that time 34 years old and the junior of all his participating colleagues, worked out the plan of action and accomplished its execution. The finding and identifying of these two Richards lines, which was the key to the matter, was a surveying masterpiece and a source of never-ending satisfaction.

In the Summer of 1957, Al. and his wife, Martha, made tentative plans to enjoy a well-earned retirement from active duty. Then, on September 17, 1957, Al.'s wife, Martha, died. The thought of retirement then held no appeal. Al. decided to keep on working, and did until his retirement September 1, 1959.

Deposited in the archives of the Conservation Department in Albany, and in various County Clerk's offices are upwards of four hundred survey maps bearing the name of Albert T. Davis, which were made by him or under his immediate supervision. These maps represent surveys of some fifteen hundred miles of Forest Preserve boundary line which he re-established. Along these survey lines are countless trees bearing his blazes, some of which also bear the blazes of his illustrious predecessors of a century and a half ago.

The poet speaks of man leaving footprints in the sands of time. The "foot prints" of Albert T. Davis are to be found as axe marks on trees along his survey lines and as stone cairn monuments at their intersections. Two hundred years from now, long after the next three generations will have come and gone, his maps will be examined, his blazes boxed and the growth rings counted—his blazed lines traced over the mountains, across rivers and lakes and through forests—the trees he planted at Cold River and Long Lake as little seedlings, will stand in majestic living testimony to the fact that here was one who left the forests of New York State better than he found them.

Before you start for the "back forty" with pick and shovel to do a little stream diverting or hire the local bulldozer operator to gouge out a pond in the course of "X" creek, we recommend that you review some new provisions of the Conservation Law as amended last year. —Editor

The Seelye Law

by C. W. Greene,*
Chief, Bureau of Fish

IN a world full of conflict, competition arising from varied possible but conflicting uses of natural resources has often been basic—even bloody. In our developing West, as an example, the sheepman had as much vested right to graze sheep as the cowman had to graze cattle. Generally, it was not possible to do both profitably on the same land, however, and countless ferocious individual and regional battles developed.

Similarly, the uses of streams and stream water have produced many conflicts of interest, among private owners and between private owners and the public interest. Probably the beds and banks of two-thirds of New York's 70,000 miles of streams are privately-owned. Experience has made it abundantly clear that owners of such streams have many and various ideas as to how to utilize such streams for their private benefit (personal, pecuniary or both). Such uses include, to mention a few, mere contemplation as a favorable landscaping feature; handy places for disposal of waste materials, varying from dead cats to sewage; damming for aesthetic, recreational, or utilitarian values of impoundments; sources of washed gravel for construction purposes; and fishing.

As population density has increased, and transportation become easier and more efficient, competition for stream water and other stream channel resources has become increasingly keen. Awareness of such competition and its detrimental effects upon the stability, appearance, potable quality, fish rearing capacities and other natural attributes of wilderness streams has been growing among conservationists for many years. Padded, however, by our philosophy of abundance, it took a long time for this awareness to sharpen into serious concern for the welfare and the apparently impending ruin of one of our most attractive, and most vitally necessary, natural resources—our streams. But, after extensive changes and damage had occurred in many streams, realization of this threat became widespread and quite definite.

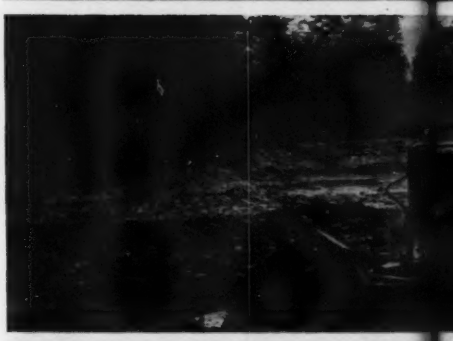
It became clear also that neither the riparian rights of stream owners nor other available bases of reasonable protection of natural stream resources, including the fish and wildlife dependent upon them, were sufficient to control such damage. In recognition that a large part of the values of streams are community (public) values, not simply values reserved to adjoining landowners, the need for legal safeguards became apparent.

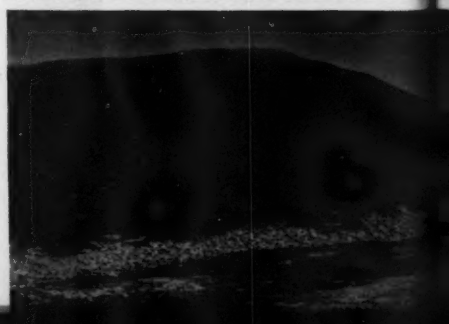
Attempts to supply such safeguards for New York streams have been made in the past, but without much success. In the Winter of 1958-59, however, the crusade was taken up by the Legislature through its Committee for Revision of the Conservation Law. Through the efforts of this committee, with co-operation from numerous interested individuals and agencies, a bill to supply some of these safeguards was drafted and passed by the 1959 Legislature. This was the Seelye Bill, which became effective October 1, 1959.

This law, (Chapter 602 of the laws of 1959) adds a new Section (179) to the Conservation Law and substantially amends Section 948. The provisions of Section 179 are placed under the jurisdiction of the Conservation Department, while those of Section 948 continue to be under the jurisdiction of the Department of Public Works.

In brief, new Section 179 provides that, with certain exceptions, "no person shall change, alter, or modify the course of any stream as defined in this section, or remove any sand or gravel from the bed . . . or the banks thereof" without a permit from the Conservation Department to do so. In considering applications for such permits, the Department is directed to determine the extent of damage dangerous to human health and safety likely to occur and the possibility of causing waste of natural resources "including soil, forests, water, fish and aquatic wildlife. . . . " To protect these values and resources the Department is authorized to control the manner and extent to which stream channels may be altered and to which sand and gravel may be removed from them, or to refuse

These pictures show activities and some consequences of man's often misguided efforts toward stream





permission for such operations to be carried on.

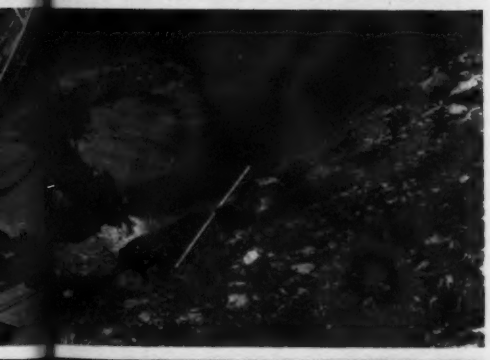
In order to minimize interference of these provisions with public works generally regarded as desirable, provisions of the bill do not apply to certain agencies in carrying out such works as stream improvement, soil conservation, flood control projects and the construction of highways and bridges.

The agencies exempted are "the State of New York, the Federal government or the government of any county of the State. . . ." In addition, any public corporation other than the county (which includes town governments) is exempted, providing approval of project plans is given by the County Superintendent of Highways of the county where such public corporation is located.

A further exemption relates to construction of dams, ponds or reservoirs or the carrying out of stream improvement, soil conservation or flood control projects. Such projects may be carried out without permit under Section 179, *provided* plans therefor are approved by an engineer of a government agency cooperating with a soil conservation district and supervised by a conservationist of such a district.

It will be noted that streams to which these provisions shall apply are limited to those "defined in this section." Further explanation of this clause in the bill mandates the Department to prepare and publish a list of streams to which proviisons of the law shall apply. This list has been issued and is now incorporated in the Minutes of the Department. Undoubtedly, this list will require revision from time to time.

"improvement." The Seelye Law affords new safeguards against devastation of our streams



About The Permit

Procedures with relation to obtaining permits required under Section 179, Conservation Law, may be listed briefly as follows:

Write or telephone the New York State Conservation Department's District Fisheries Office in your area or the Bureau of Fish, New York State Conservation Department, Albany 1, N. Y.—ask for the "Seelye list" of streams. The list will be mailed to you, with permit application form. Check the list to see if the stream you propose to effect change, alteration or modification is one to which terms of this Section apply. If it is, fill out the permit application form and mail it to your District Fisheries Office of the Conservation Department; attention, District Fisheries Manager.

Overlapping Functions (Sections 179 and 948)

1. In situations where *construction of dams or artificial obstructions* is involved, a permit under Section 179 and approval of plans and specifications for such construction under Section 948 are *both* required. Although provisions of Section 948 are under the jurisdiction of the Department of Public Works, it is obvious that no dam or obstruction can be placed in a stream without altering, changing or modifying its course. Such altering, etc. comes under provisions of Section 179.

2. In cases where the streams are on the "Seelye list," and construction of dams or obstructions is involved, the permit under Section 179 (from the Conservation Department) *is a prerequisite* for obtaining approval by the Department of Public Works of the plans and specifications for the building of such structures under Section 948.

Under Section 948

1. After a permit has been obtained in accordance with Section 179, it is required under Section 948 that plans and specifications, prepared by (a) a licensed professional engineer, (b) an engineer or conservationist employed by a governmental agency co-operating with a soil conservation district, or (c) an engineer employed by the Conservation Department, for any structure or artificial obstruction (whether temporary or permanent and used for the impoundment of water) must be filed with the Department of Public Works, Waterways Bur.:

A. *For dams on natural streams, if—*

(1). The area draining into the pond or other body of impounded water exceeds one square mile.

(2). The impounding structure is more than ten feet in height above the natural bed of the stream at any point.

(3). The volume of water which the structure impounds exceeds one million gallons.

B. *For farm pond, dams, if—*

(4). The height of the earth embankment, measured from the top therof to the lowest point of the excavation in the reservoir area, exceeds fifteen feet.

(5). The capacity of the pond exceeds 1,500,000 gallons.

(6). The area draining into the pond exceeds two hundred acres.

(7). The pond comprises more than ten acres of surface water when full.

(8). The water is diverted into the pond by an artificial obstruction in or across a natural stream or water course.

(9). In the case of farm ponds, only a notification of the intent to construct a dam or excavate for a farm pond, properly executed, need be filed with the Department of Public Works, Bureau of Waterways, if the dam and pond are under the limits previously prescribed for farm ponds.

The provisions of this law are far-reaching and may be considered onerous in certain situations, by owners of waterways affected. In general, however, these provisions appear to favor both the riparian interests of stream owners and the vital interest of the public in the conservation of our water resources.

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*The author wishes to thank personnel of the State Department of Public Works, especially D. C. Ogsbury, John E. Peck and Oscar Widstrand for supplying information included herein on provisions of Section 948.

Little Brown Bear of the Fields

by Cecil and Dottie Heacox

THE scientific approach comes naturally to us. But often, another side of our nature leads us to prefer charming myth to scientific fact. That is why we start off each February 2d by wishing each other a cheery "Happy Groundhog Day!" Feeble as most family-type jokes are, the greeting is nevertheless affectionate acknowledgment of the years of close association with our nearest neighbor here on Tower Hill.

Whether or not our groundhog will see his shadow is purely academic. Up here at the 1,200-foot level of Dutchess County, on the few beat-up acres we call Timberdoodle there is sure to be six more weeks of winter anyway. Long ago our nearest neighbor lost caste as a weather prophet. But as a leading character on our local stage he persistently hogs the spotlight. An outstanding example of the survival of the fittest—and the orneriest—he plays a significant, often exasperating part of our daily lives.

Soon our pansies and petunias will get their daily pruning; the bean rows will be sheared off as neatly as with a lawn mower; and we'll fall flat in the briars when we stroll over "our land" and find that Mr. Groundhog has staked out—or dug—a prior claim.

But the irritations and frustrations in our neighborly relations are tinged with a grudging note of admiration. No system of clacking paddles whirring in the breeze or white rags fluttering, can deter him from his nightly raids; no fence can be sunk deep enough, no trap made inviting enough.

Near the picture window at Timberdoodle we keep a little book called "Nature Notes." Here our groundhogs' annual premieres and other nefarious doings are recorded: "Saw Mr. G. for first time this year on March 26—about usual time." "Three were down near the spinney late this afternoon. One stuck nose over edge of terrace. Guess he was impatient for the cocktail hour, too." "Saw platinum blonde one again today near the big juniper; 'Marilyn' seems to have wintered well."

The picture window observation post works both ways. The groundhog uses the window to keep track of us, too. By some miraculous instinct he knows if we are merely walking by and looks up for a moment with a half-eaten petunia dangling in Carmenlike fashion from his mouth. If, on the other hand, we are headed for the back door, he suspects our motives, scampers to his burrow and plunges in, petunia and all.

It's an intriguing challenge and we do our best to fool Mr. G. We even resort to belly crawls, commando style, past the window and keep the back door latch well oiled. But some vibration registers a sinister warning in his wily little head and he disappears in a flash.

The groundhog like the whitetail deer, another close neighbor, was formerly a native of the forests. Both have moved into agricultural country. To us, the groundhog—or woodchuck—is affectionately known as "the little brown bear of the fields." Our farmer neighbor has more inelegant but just as colorful names as he repairs a cutting bar after striking a mound of rubble thrown up by the critter; or looks at his cornfield with its stripped rows of stalks.

It's understandable why the farmer takes a dim view of the groundhog. But our sportsmen friends are more enthusiastic. Besides being a wary quarry, furnishing good off-season sport, their burrows provide pre-fabricated homes for other wildlife. Opossums, skunks and weasels occasionally move in and rabbits enjoy squatters' rights in the air-conditioned, split-level homes groundhog burrows provide.

In our rambles we've poked into enough of these groundhog homes to learn they are about three or four feet below the surface. We've also turned enough ankles to learn, the hard way, there are several well-concealed exits besides the big, mounded entrance.

The intricate twists and turns in the burrows, the pockets lined with leaves and grasses, make a snug hideaway during the winter. The little brown bear of the fields is not afflicted with that curse of modern living, insomnia. In the fall he waddles underground for a Rip Van Winkle snooze of about four months. We use the word "waddle" advisedly for at this time he's stored up an enormous amount of internal fat. There's an October entry in "Nature Notes": "How can a diet of pansies and petunias be so fattening?"

In our more cultural moments we use the groundhog's scientific name *Marmota monax* in the "Notes." To complete the taxonomic classification, the fact that he is a member of the squirrel family *Sciuridae* was added. Someone ticked off a series of question marks. A few days later the question marks were erased and another entry posted: "Saw groundhog on first branch of old apple tree. Seemed to be surveying his domain like a country squire."

Having consideration for the privacy of our nearest neighbors we consulted a zoological Kinsey report to supplement our notebook for the more intimate details of the groundhog's life.

Mr. Groundhog does his courting in the early spring and such is his romantic ardor that he frequently digs tunnels in the snow to search out with incredible accuracy the burrow of a mate. Radar is no more efficient in tracking down objects than a lovelorn groundhog seeking the light of his life. We like to think of our nearest neighbor responding so eagerly to springtime on Tower Hill. A March entry says: "Took a walk today in the snow and saw some subnivean tunnels. Hope Mr. G. and 'Marilyn' find each other. The little ones should be sensational."

In about four weeks Mrs. G. produces four or five tiny pink offspring, blind and completely naked. Even before opening their eyes, four weeks later, they are furred and the grizzled snoot, black face and other characters have developed which make the groundhog distinguished looking in a repulsive sort of way. Set down in "Nature Notes" is a more impressionistic description: "Just realized, he looks like a baked Idaho potato with sideburns."

The young groundhogs hate to leave their happy home and play around the burrow until mid-summer when they leave to set up their own diggings. Occasionally we hear the mother's shrill whistle, warning of danger. A sound which explains still another name for the groundhog—"whistle pig."

Being of a thrifty nature we've tried to think of some reason for harvesting our crop of groundhogs. Groundhog stew, a tasty dish served in Cherokee country after a heartening bowl of yellowjacket soup, doesn't seem to tempt our appetite. Nor does the thought of a let-out, tawny, marmot stole appeal to feminine vanity.

We've finally decided just to enjoy and grudgingly admire the little brown bear of the fields while he continues to outwit and outchew us on every side.

New York State Education building in Albany. Museum occupies the top floors

The New York State Museum and Science Service

More New Yorkers should know of the scientific treasures at their State Museum and of the specialized services available to them through its staff. We hope, in the acocmpanying article, to perform this introduction.—Editor

by Rosemary A. Clarke

THE farmer shifted uneasily from one foot to the other as the State Trooper looked at the skull.

"I was just diggin' for a well in the backyard, when I found it." He swallowed hard. "You don't suppose there's—ah, there's been a murder, do you?"

The Trooper said he didn't know. Homicide was, of course, a possibility, but first of all, the skull would have to be examined by an expert to make sure that it was human. This was a job for the New York State Museum and Science Service in Albany.

While the farmer went back to digging his well, State Police brought the evidence to the fifth floor of the Education Building opposite the Capitol. Before the day was over, the Museum had solved the mystery. The skull was identified as that of an American Indian . . . one who had departed for the Happy Hunting Grounds perhaps two or three centuries ago! The "case" was closed, and somewhere in upstate New York a farmer breathed a sigh of relief. He wouldn't have to testify in court after all.

The role of part-time detective is a new and unexpected one for scientists on the State Museum staff. Founded in 1836 as the "Geological and Natural History Survey," the Museum was created to inventory New York's mineral and other resources. Oddly enough, it was the Erie Canal that sparked interest in the project. In 1810, when the Big Ditch was just a glint in Clinton's eye, the future Governor set out on horseback to reconnoiter the proposed route for the canal. An amateur naturalist, DeWitt Clinton was amazed by the tremendous variety of plants that he saw along the way, and he returned home convinced of the need not only for an inland shipping route, but also for a systematic study of New York's natural riches.

In 1817, after he was elected Governor, Clinton decided to drum up interest among the State's lawmakers for a natural history survey. His approach was certainly original. He began by pardoning from debtor's prison a well-known professor, Amos Eaton, who knew a good deal more about science than he did about handling money. Mr. Eaton, in turn, agreed to give a series of lectures before the New York Legislature. Popular scientific knowledge in those days was scanty—in fact, there were people who still believed that birds spent the Winter on the moon or the bottom of a lake! This didn't make Eaton's task any easier, but at least it was better than staying behind bars. Eventually, he persuaded the lawmakers of the need for a survey of the State's natural resources and in 1836, the project got underway.

As scientists went to work collecting rock samples by the thousands, New Yorkers began dreaming of the fortunes to be made if gold or even coal were discovered. They regarded the study as a kind of king-sized treasure hunt. When the survey was over a few years later, geologists had found—not the glitter of gold—but valuable deposits of garnet,

lead, zinc, iron ore and limestone that are still important to the Empire State's economy. They had also rounded up a sizable collection of rocks and fossils—and a new problem. There was no place to put their collection. Finally the Legislature came to the rescue and appropriated funds for a "natural history cabinet."

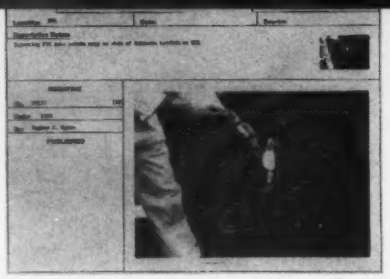
The first curator was paid the somewhat less than munificent salary of $100 a year. Out of his paycheck, he was also expected to buy firewood for the exhibit rooms. Yet, even this didn't cool the poor man's enthusiasm and the Museum collection somehow kept on growing. Indian artifacts were added, many of them donated by private citizens.

In 1854, while the rest of the Nation was wrangling over the slavery issue, the Museum quietly prepared for war on another battlefront. Dr. Asa Fitch, America's first official entomologist, was appointed to the staff. Thanks to his pioneering work, New York would launch an attack against insects that were eating away at farmers' crops and sabotaging our food supply. The job of studying, and controlling, agricultural pests was later taken over by other State agencies, so the Museum's target shifted to research on forest-damaging insects and people-plaguing bugs, including those that cause disease.

Meanwhile, the first State botanist had also been recruited. He was Charles H. Peck, a gentleman who, in the interest of science, was not afraid to live dangerously. The intrepid Mr. Peck made a practice of sampling several new kinds of mushrooms every year, just to see if they were poisonous. In spite of his insatiable curiosity, the gentleman lived to retire at the age of 82, a world authority on mushrooms (and probably a hopeless dyspeptic). Under his direction, the State Herbarium had become one of the most important plant collections in the world.

Today, the State Museum and Science Service has one or more specimens of just about every plant, bird, fish, mammal and insect that grows, flies, swims, walks or crawls in New York. Yet the Museum's job has really just begun. As the State's scientific research center, it is zero-ing in on age-old problems that range from the dread disease—rabies, to the No. 1 cause of hay fever in this country—ragweed pollen.

Obviously, the man who gave ragweed its scientific name didn't suffer from hay fever because he called it *Ambrosia*, food of the gods. But to millions of wheezing, sneezing, sniffling Americans, the plant means nothing but misery. In New York State alone, there are nearly a million members in the "we-hate-ragweed" club.



Injecting radioactive isotopes

So far, science has held out small hope of controlling the ragweed pollen fallout. But now, through atomic technology, the State Museum hopes to bring us one step closer to the goal by charting the travels of pollen through the air. The unique study is financed by a grant from the U. S. Public Health Service and, in co-operation with the Atomic Energy Commission, it is being conducted at the Brookhaven National Laboratory on Long Island. As a key part of the experiment, a one-acre "ambrosia garden" is cultivated on the Laboratory grounds.

When the plants begin to pollinate, radioactive isotopes are injected into the stems. Thus, the allergy-causing grains of pollen (actually microscopic in size) will later be identifiable as having come from that field. Sampling devices to trap the pollen are then set out in all directions, at different levels from the ground and at varying distances from the one-acre plot, anywhere from a hundred feet to a mile or more. In this way scientists can determine how much of the pollen travels where and how far, and the effect of wind, rain and other conditions on its wanderings.

As a result of New York's "Operation Ragweed," public health authorities throughout the country may be able to provide us with more precise data on areas that are pollen-free or else have a comfortably low ragweed count. Perhaps the weather man will someday be predicting the "sneezability index" several days in advance, so that hay fever sufferers can clear out before their sniffles start.

In the field of zoology, the State Museum is tackling an important study related to rabies, a disease that threatens humans, domestic animals and wildlife. The dreaded ailment, according to medical historians, is probably as old as civilization itself. Over the centuries, many different remedies have been tried for its treatment, from the "magic" pills and potions of the early Romans to modern wonder drugs. However, there is still no cure for rabies; it is always fatal in humans. (The Pasteur treatment is only a preventive and must be administered before the virus has attacked the brain.) Recently, fifty-six Americans died from the disease in one year. Among the Nation's domestic animals, the mortality rate has climbed to between 7,000 and 8,000 annually and the cost to taxpayers is considerable.

Public health authorities agree that the ultimate solution to the rabies problem is the control and eventual elimination of the disease from dogs and the wild animal population. In the case of wild animals, and before the battle can be won, we must determine which animals are the initial source of infection. Several species are already known to be carriers of rabies, such as bats and foxes. (In New York, the red fox is the principal culprit and to help keep their numbers within safe limits, the State Conservation Department traps an average of 3,000 foxes a year.)

In addition, scientists have long been wondering if mice, moles, chipmunks and other small mammals might be a *hidden reservoir* of rabies. To find out, the State Museum is conducting a Small Mammal Project. Since 1955, when the survey began, thousands of mice, moles, shrews, chipmunks and squirrels have been trapped, and brain tissue from these animals submitted to the State Health Department in Albany for laboratory analysis. So far, results have been negative. Tentative conclusion: There is no rabies in small mammals other than bats. And until the State Museum should prove otherwise, scientists throughout America can concentrate their efforts toward rabies study and control on the already known carriers of the disease.

In entomology, the Museum and Science Service has been faced with an endless fifth column of gnawing, biting insects from the highly destructive white pine weevil to the downright dangerous eastern wood tick or the just plain pesky black fly. There are, in all, an estimated 25,000 species of bugs in the State, with new varieties popping up all the time. The Museum's job is to study the insect's life history, and then to work out effective control measures that will not upset the balance of nature. Other agencies, State or local, actually put the measures into action to lower the boom on the bugs.

White pine is one of New York's most valuable timber trees, and at one time it was the species most often planted as part of the State's giant reforestation program. Then the white pine weevil began cutting up. By attacking and killing the topmost portion of the tree (known as the "leader"), the weevil often makes the pine grow so crooked that it is totally unusable as lumber. In New York State alone, losses run into hundreds of thousands of dollars annually. Research into the problem showed that the insects lay their eggs in the treetops, and aerial

spraying might therefore be the answer. In co-operation with the Conservation Department, several large-scale operations from the air have been carried out experimentally, with good results. In small plantings, knapsack sprayers are also effective. So it looks as though man is finally going to win over the weevil!

The eastern wood tick *(Dermacentor variabilis)* has been a headache to public health workers rather than to foresters. A common pest on Long Island, it carries Rocky Mountain spotted fever, but once again, a life history study by the State Museum's entomology staff has pointed the way to effective control. For one thing, the Museum learned that, contrary to popular belief, the ticks stay close to the ground where they cling to blades of grass and underbrush. There they wait to be carried away by the first potential victim, man or beast, that brushes against them. This tendency of the "fever tick" to crawl onto low-growing vegetation, and also to concentrate along paths and roadsides, has been their undoing. It makes them vulnerable to roadside spraying as a means of control. (Detailed instructions are available on request to the Museum.)

More than once, the Museum's techniques in insect-control have been applied the world over. It was the State Museum and Science Service, for example, that pioneered in the use of insecticide fogs for cutting down mosquitoes and other pests. In 1947-48, it also initiated the laying of fog from a helicopter, a method still used in Africa where its expense is warranted by public health needs.

You may find little poetry or romance in killing off bugs, however important the job may be, but archeology is quite another story. A search for knowledge about the long-forgotten past and the people who lived and died before the dawn of history, it has all the fascination of a never-ending mystery novel. Along with the conquest of outer space, it is one of the last frontiers for the modernday explorer.

Here in New York, Indian settlements are known to have existed at least 5,000 years ago, pre-dating even the great pyramids of ancient Egypt. Up until now, scientists have been interested primarily in how these prehistoric people earned their living. But with the help of a National Science Foundation grant, the State Museum is undertaking a special study of these old Indian sites that represents a dramatically new approach to the science of archeology. Entire settlements have been excavated and mapped in the most minute detail. By interpreting clues such as the size of the houses and the number of amulets found in burial grounds, New York's experts are out to get a much more complete picture of prehistoric Indian life—cultural, social, religous and political, as well as economic. Only the language that was spoken in those days will continue to be a mystery.

Archeologist at Indian dig

While archeology is concerned with the past, it is both helped and hindered by events of today. Carbon dating, an offshoot of nuclear research, has taken much of the guesswork out of determining the age of archeological remains and is a boon to the scientist. But modern progress also means the construction of highways and housing developments that can destroy old Indian sites forever. Just in the nick of time, the Museum was recently able to save a cluster of Indian mounds that stood in the path of a proposed roadway along Perch Lake in Jefferson County. However, it isn't always quite so lucky. To preserve such priceless relics in the future, New York really needs a salvage archeologist on its Public Works Department staff, a step that many other states have already taken. To encourage this sort of thing, the U. S. government now permits a certain percentage of Federal highway funds to be used for archeological salvage work.

If you're planning to buy a farm, build a skyscraper, drill for natural gas or look for iron ore, you'll be more interested in the State Museum's geological map than prehistoric Indian sites. Since the original survey in 1836, a veritable gold mine of new information has come to light on New York's mineral resources. To get even more facts and figures members of the geological staff are in the field now, mapping different sections of the State. The data will be incorporated into a new, five-part geological map of New York, to be published within the next few years.

According to the State Museum and Science Service, the demand for geological facts about the Empire State has always been big. If you know where limestone deposits are located, then you know where to find the finest farmland because soil that overlies limestone is naturally rich and fertile. Before you put up a 20-story office building, you have to know

Test drilling by petroleum geologist

the soil and rock conditions under the proposed site. Engineering design and construction cost will both depend on these findings. Natural gas and oil are known to be associated with sandstone and shale, while iron ore is usually found in granite-like rocks such as those in the Adirondacks and the Hudson Highlands. Obviously, this information is vital to New York industry. In fact, the Museum's up-to-date inventory of our mineral resources has attracted new investments to the State. One manufacturer, for example, located a million-dollar plant here because of the many shale deposits available as raw material for making lightweight concrete.

Geology can effect economies in government spending, too, which should please the taxpayer! Before work was started on the St. Lawrence Seaway, the Museum had already completed a study of glacial deposits in the valley. Sand, gravel and other surface rock were mapped in detail, so they could be used as a local source of building material for this monumental project. The data will also be helpful in the future to locate new building foundations, water supplies and mineral resources in the St. Lawrence Valley.

Meanwhile, the State Museum is acting as consultant to New York's Atomic Development Commission on another problem: The safe storage of radioactive wastes. Underground salt deposits, left by ancient seas that once covered most of the State, may prove to be the answer. They are one of the most desirable sites for such storage, and New York has 10,000 sq. mi. of salt under its surface.

Besides its many surveys, research projects and services to industry, the State Museum handles an endless stream of requests for scientific information from school children, teachers, housewives, businessmen, other State agencies and occasionally a foreign country. It also identifies wild flowers, berries, marijuana, mushrooms, snakes, birds, bugs, Indian relics, rocks, minerals and—well, if you have it, they'll name it. But that's another story!

Caught up in the swelling tide of urban and industrial expansion; of more leisure time by more people with more means, New York's natural resource facilities are taxed as never before. Only imaginative and courageous action, now, will meet the challenge—

Recreation Development:

ONE of the most impressive features of the years since World War II has been the growth of outdoor recreation. Wherever a person goes, he sees families and individuals enjoying themselves outdoors through some form of sport. Around metropolitan areas he sees parks, playgrounds, golf courses and tennis courts coming into heavier use; he finds bathing beaches covered with people in bright and scanty clothing, and rivers, lakes and marine water fronts teeming with pleasure boats of all sizes and varieties. As he moves farther afield, he is likely, on Summer week ends, to find long lines of cars waiting to gain entrance to public campsites. Similarly, he sees county and State parks often filled to capacity with people while carloads more are turned away. Even the backwoods areas and wilderness streams are being traveled more and more by hunters, fishermen, campers and mountaineers.

There are numerous reasons for this astonishing increase in pressure on our recreation facilities and resources. One is our rapidly growing population. Then, too, people have more leisure than they used to, and more money to spend on their leisure time. As another factor, people are indulging more in the "participant" recreations and hobbies, especially golf, hunting, fishing, hiking, camping, boating, swimming, photography, nature lore; even painting.

Further building up the pressure, outdoor recreation today is undertaken more and more by whole families rather than just by the grown-up members. The young families that have emerged since World War II are larger than those of the depression years, and they tend to travel together because of the mobility of the station wagon, the miniature bus and the outboard motorboat.

All of these factors indicate why outdoor recreation is growing so rapidly: They simply mean that American people are taking to the outdoors as never before in history. The tremendous resulting pressure imposes great problems on a State like New York, with its unusually high population and rich variety of opportunities for outdoor recreation. At the same time, we have to realize that recreation is not only a problem—it is a great asset. In New York State, it forms the core of a $2-billion business: It is a part of our State's economy which reaches into every gas station and shopping center, as well as every enterprise in resort communities. So it is essential for those of us responsible for outdoor recreation of the State to analyze the needs and in every way possible, foster the development of our recreation resources to strengthen our economy and assure the health, wealth, and happiness of our people.

This responsibility is being taken very seriously. Last Spring, Governor Rockefeller asked the Conservation Department to conduct a study of the status and needs of outdoor recreation in New York State, paralleling in its nature a national study under the jurisdiction of the National Recreation Resources Review Commission, of which Laurence Rockefeller is chairman. The New York State study has now been completed and a report submitted to Governor Rockefeller. In brief, it indicates an *immediate and crucial need* for the expansion of suitable outdoor recreation resources in New York, distributed equitably from the great metropolitan areas to the wilderness lands of the Adirondack and Catskill mountains. The report emphasizes the need for advance planning and for acquisition of new lands by the State and by municipalities, to provide space for the development of new recreation resources; and it tells what kinds of recreation development are needed. Most of all, the report indicates conclusively that all of this work must be started *now* —immediately—not next year—but *now!* We simply have to move ahead dynamically if we are to keep abreast of the swelling tide of demands for recreation.

The following sections summarize the requirements for recreation development in New York State:

State Parks

State parks must be large, high-capacity areas, designed either for day-use or for camping and overnight use, or both.

We are fortunate, in New York State, in having one of the finest park systems in the Nation, but with the mounting demand for outdoor recreation, the capacity of many of our parks is often vastly exceeded. On the average, it is estimated that the day-use capacity of the New York State park system is at least 20 per cent short of current needs—and far more deficient as we look toward the immediate future. That we drastically need more park capacity in the State is apparent—about 50 per cent more in general park facilities by 1965; two to three times the existing capacity by 1976; and accelerated increases in camping, boating and other associated waterfront facilities, involving new locations and park capacities many times that now available. Only small portions of the needed facilities can be provided on existing park lands.

While much of the eventual development on additional lands can be deferred, the need for the land itself, in the right, critical and vulnerable suburban and water-front locations, must be faced immediately. Therefore, the most crucial need in the State park program today is acquisition of open land close enough to urban centers for efficient use as parks. Some land of this kind still remains; but it is being swallowed up so rapidly by the spreading of cities, suburbs and industrial centers, that it must be acquired for park use in the very near future or its potential for outdoor recreational use will be lost forever.

Municipal Parks— County, City and Town

These areas differ from State parks in that they are generally closer to people's homes, smaller in size and provide for somewhat different kinds of recreation. While municipal parks vary greatly, they usually offer playgrounds, swimming pools, athletic fields and places for older people to sit and stroll.

Probably the most difficult problem involving municipal parks is faced by suburban towns which have developed city-size and concentrated populations

Now or Never

by H. G. Wilm,

Commissioner, N. Y. S. Conservation Dept.

within the last two decades. These communities have little precedent or experience to guide them in planning and developing park facilities.

Here again, the most serious problem is land. Given sufficient time and interest, these communities can set up programs to meet their recreation needs, but they cannot afford to wait to acquire the necessary land. Green spaces are disappearing so rapidly that soon they will not be available at all without impossible financial investments and the unbearable dislocation of homes, commerce and community services.

For these reasons, county, city and town governments with expanding populations need to be encouraged in every possible way to plan ahead for their outdoor recreation needs. Few of them, however, can quickly raise the funds to save the remaining open lands necessary for local parks which must be acquired *now*, if they are to be acquired at all. Accordingly, some form of financial assistance from the State should be made available to them for the period ending in 1965.

Public Campsites*

Camping is the fastest growing form of outdoor recreation in New York State. We have been fortunate, under the post-war construction program, to have doubled our campsite capacity in recent years, but public use has increased even faster. Although the Forest Preserve region now has 4,579 camping sites that will accommodate almost 18,000 campers, these facilities are constantly overtaxed during the most popular Summer seasons—and the deficiency of campsite capacity is constantly growing.

Even beyond the need for expansion of facilities, there is also an immediate and compelling need for improvement in the maintenance and operation of existing public campsites. There are not enough employees on the areas themselves, nor adequate funds for the purchase of needed materials and supplies. As a consequence, the overtaxed campsite personnel are faced constantly during the Summer season by lines of cars with tired families, waiting to get into campsites that are often necessarily provided with inadequate policing and maintenance.

The study report makes the following recommendations:

1. Strengthen the existing campsite program; improve maintenance and operation of existing campsites and make provision for adequate maintenance and operation of new areas.

2. Develop 43 public campsites during the period ending 1965: Twenty-three in the Forest Preserve region, and the rest in other sections of the State. Construct 63 additional campsites between 1965 and 1976: 49 in the Forest Preserve region, and 14 outside.

3. Provide funds to acquire suitable lands for campsite and other recreational use developments, both within and outside the Forest Preserve region.

4. Wherever possible, develop public campsites on land acquired by the State for reforestation and game management areas.

*This section refers to the campsites under the jurisdiction of the Division of Lands and Forests in the Conservation Department. Some camping is provided in State parks, as indicated.

Wilderness Recreation

Seventy-five years ago, New York State took a unique and pioneering step in conservation through the establishment of the State Forest Preserve. As a result, the State now owns 2½ million acres of Forest Preserve land within a day's travel of all of our big metropolitan areas. This land has always been cherished and protected with devotion by New York State people. However, it was not until the period after World War II that the full potential of our Adirondack and Catskill parks began to be appreciated. At the same time, the growing "back to the woods" movement has made it painfully evident that these parks have serious defects and limitations based on the "shotgun" pattern of State ownership, lack of public access across private lands, and lack of a long-range plan and sufficient funds to solve such problems.

Realizing the growing seriousness of this situation, a special co-operative study of the wilderness aspects of the Forest Preserve was started last Spring by the State College of Forestry, the Joint Legislative Committee on Natural Resources and the Conservation Department. This study, conducted by a team of trained foresters, brought out the following principal findings:

1. There are 11 areas of Forest Preserve land large enough (the smallest is 16,000 acres) and remote enough to be considered *real* wilderness. These areas total approximately 664,000 acres —about 30 per cent of the Forest Preserve lands in the Adirondacks. The rest of the Preserve consists of smaller, disconnected tracts which, because they are interspersed with many private lands or are adjacent to main roads and settled areas, do not now, nor ever will, have wilderness characteristics.

2. The following steps are needed to insure or protect the wilderness values of these 11 areas: State acquisition of private holdings within large State tracts, of other private lands needed to consolidate Forest Preserve tracts into units large enough to be considered wilderness areas, and of private lands which lie outside wilderness areas and prevent public access to them.

Aside from acquisition of these lands, the wilderness areas need to be protected by the elimination of motorized travel within their boundaries. Finally, because travel within the wilderness areas will be limited to hiking, horseback or manually propelled boats, it is important to have good, well-marked trails and waterways. Also needed will be many more of the traditional, open, log lean-tos scattered along these trails and waterways. A few more strategically located ranger cabins may also be required.

To obtain these objectives, it is recommended that during the next five years various key parcels be acquired, totalling 192,000 acres. An additional 105,000 acres will be needed by 1976. For each of these 11 true wilderness areas, a long-range plan must be developed, to insure their protection and expanded public use for wilderness recreation.

Fishing rights on more water such as this is needed

Upland Multiple-Use Areas

Hunting and fishing are traditionally important parts of outdoor recreation for American people. Until the past gen-

eration, opportunities to hunt and fish were relatively available to most citizens of New York State within a reasonable distance of their homes. In recent years, however, privately-owned lands, open to public hunting and fishing, have become progressively less available through encroachment of metropolitan areas, suburbs posting, and by closure of large tracts as game preserves and private hunting or fishing clubs.

Of several possible means of counteracting this trend toward the loss of hunting and fishing areas, one very effective course of action is the acquisition of multiple-use lands by the State.

At present the State owns about 680,000 acres of lands, producing timber crops and harvestable populations of fish and wildlife, and also providing space for picnics and outings which are becoming of increased importance. The present administration's program calls for additional acquisition of land for reforestation and multiple-use areas to provide further opportunities for public hunting and fishing on State land, as well as for other forms of recreation and timber production. It is recommended, therefore, that before 1965 we acquire at least 122,000 acres of land for various purposes including hunting and fishing. Between 1965 and 1976, an additional 441,500 acres of multiple-use upland areas will need to be acquired.

Public Fishing

Another means of preserving opportunities for people to fish on unposted land is through acquisition of fishing rights on top-quality trout streams in New York State. This pioneering program, begun in 1935, is designed to provide rights-of-way along streambanks for public fishing. Since the beginning of this program, only 853 miles of fishing rights and easements have been acquired. But more than 2,000 miles have been surveyed and recommended for purchase. At the past rate of performance it would take more than 60 years to acquire the mileage needed to insure public fishing on our trout streams. An accelerated acquisition program is essential if adequate public fishing rights are to be assured.

Along with the problem of assuring angling opportunities for trout fishermen on our streams, there is an even more pressing demand for access to the shores of our many fine lakes. Because of private lakeshore development, it is increasingly difficult for the public to gain access to these waters. Acquisition by the State of lake access sites, only recently begun, must be stressed and accelerated if we are to salvage anything in our belated bid for such premium property. Of course, similar needs exist along our salt-water shorelines.

In order to meet these needs, it is recommended that an additional 400 miles of fishing rights be purchased along streams during the period 1960-65. Immediate acceleration of our program to purchase access rights to lakes and marine waters is also urged. By 1976, an additional 800 miles of fishing rights should be purchased. This program, and further purchase of lake and salt-water access sites should be continued until all necessary acquisitions have been completed.

Public Hunting

It has been estimated that by the year 1965, more than 900,000 nimrods will be venturing afield looking for a place to hunt and reasonable success in hunting. These people are highly mobile: Nearly half will travel outside their own counties. Only a small fraction of these hunters can possibly be taken care of on State-owned lands, therefore, a workable program must be developed to assure greater public hunting and fishing opportunity on privately-owned lands. Increasing hunting pressure on private lands is already reflected by growing tension between hunters and landowners and by increased posting of private lands. The Fish and Wildlife Management Act is designed to counteract this conflict by establishing "co-operator areas" for hunting.

Expansion of our program to open private lands to public hunting under the Fish and Wildlife Management Act holds real promise. In the next five years, we shall strive for co-operative agreements on at least 500,000 acres of such lands in the State. By 1976, our goal for this type of "co-operator lands" should be at least one million acres.

Along with the acquisition of these lands, through co-operator agreements or through purchase and lease, practices for the improvement of habitat for wildlife must be applied.

Game habitat improvement will also be needed on State lands. At the present level of income, this program can be financed only partly through the Conservation Fund. The anticipated increase in license sales provided little more than enough to meet current increases in demand and the costs of existing programs. Any accelerated expansion may call for higher fees or other sources of financing for the management of State lands for wildlife.

The Preservation of Natural Wetlands

Two hundred years ago, New York State had about a million acres of naturally flooded lowlands, fresh- and salt-water marshes and swamps, collectively known as "wetlands." These were the homes of teeming populations of waterfowl and valuable furbearers. But the wetlands have dwindled through accelerated draining, filling and pollution, until today they are only half their original extent.

These lands are peculiarly vulnerable to destruction. Many have been drained to provide "muck" farms; shoreland marshes have been filled, dredged, or re-drained for industrial and residential expansion. There now remain about 150,000 acres of wetlands of particular value for waterfowl. Of these, approximately 100,000 acres are now in State ownership or control; and about 13,000 acres of Long Island shore marshes, of particularly high value to waterfowl, are in town or county ownership. These are

subject to dedication for preservation and joint development in co-operation with the Conservation Department, under the new Long Island Wetlands Act.

Thus there remain about 37,000 acres of high-valued wetlands in private ownership, and in immediate danger of loss. Therefore, our recommendation is to acquire these 37,000 acres before 1965. Also, we should acquire the riparian rights to high-value wetlands along the shores of Lake Ontario and the St. Lawrence River. By 1976, at least another 16,000 acres of lower-value wetlands should be acquired for wildlife and recreational development.

Winter Sports

For most people, outdoor recreation has been a powerful lure at all seasons of the year—except Winter. Especially since World War II, however, millions of people everywhere have discovered that skiing and related Winter sports provide a most exciting, exhilarating and satisfying pastime. In New York State, as elsewhere, Winter sports can provide a means of bolstering the economy of areas such as the Adirondacks, which otherwise depend largely on Summer tourists for their livelihood.

Development of skiing centers is proceeding rapidly under private initiative throughout the State and this is a fine thing. In the Adirondacks and Catskills, however, it seems practically impossible to create a sufficient number of major ski centers without utilizing some Forest Preserve land. It is such major centers, located in the mountains and not the hills, equipped with modern facilities, that attract the mass of skiers. Because Forest Preserve land is inevitably involved, it seems equally apparent that the State must develop major ski centers in these mountain regions of New York State. Incidentally, such development by the State will inevitably provide public support for bolstering the area economy.

It is recommended, therefore, that existing ski centers (Whiteface Mountain and Belleayre Mountain) be expanded as needed into fully-developed major ski centers adequate to meet all future demands; and providing other facilities than skiing, such as skating rinks, sled runs and tobogganing facilities. In addition, it is recommended that the location of other possible ski centers be explored; and particularly that the proposed Gore Mountain Ski Center at North Creek in Warren County should be developed as soon as possible, if the results of present studies are favorable.

Boating Facilities

Recreational boating has grown at an astounding rate during recent years: National annual increase in recreational boating stands at 14 per cent—twice as much as the corresponding increase in motoring. In New York State, during the next three years the Division of Motorboats of the Conservation Department expects to register an estimated 600,000 boats; this number is growing so rapidly that within a few years the number of boats will doubtless rise to a million.

Only recently has the State begun to acquire and develop boat-launching sites to provide places for all these boats to reach our fresh-water and marine shorelines. Up to now the effort has had little significance in the face of the booming boat and outboard-motor industries. The State now has only ten boat-launching sites and no marinas, outside of some facilities at certain of the State parks and public campsites. Because of the increased demand and rising prices for water frontage all over the State, the problem of providing access to shorelines can be solved only by a crash program to purchase launching sites on our major waterways *immediately*.

Therefore, it is recommended that by 1965, the State should purchase an additional 100 boat-launching sites. By 1976, an additional 180 boat launching sites will need to be acquired. If this can be done, on both navigable and non-navigable waters, it is believed that most of the needs for public access to our shorelines can be met.

Summary of Recommendations

To meet all of these rapidly mounting demands for outdoor recreation, three distinct and dynamic courses of action will be required:

1. Land for park and other recreation purposes needs to be acquired by the State in municipalities *now*. This is the most important single finding of the recreation study. Suitable areas for park and other recreation development are disappearing so rapidly, and the prices of remaining sites are climbing so rapidly, that this land acquisition program calls for bold and imaginative action as fast as it can be done. Therefore, the recreation study recommends that $75 million be made available as quickly as possible for the acquisition of land for State parks, for acquisition of lands other than State or municipal parks, to provide additional opportunities for outdoor recreation including public camping, fishing, hunting, boating. Winter sports and multiple purposes including the preservation of scenic areas, watershed protection, forestry and reforestation. Included in this amount will also be State aid to cities, counties, and towns to help defray their cost of acquiring lands for municipal parks.

2. Intensive planning is required. Because personnel and other facilities are woefully lacking, the planning resources of the Conservation Department need to be enlarged immediately to provide adequate detailed plans for the development of necessary new recreation facilities. Similarly, municipalities should be encouraged to plan ahead for the development of their recreation areas.

3. Facilities need to be built on present and future recreation areas. As the Conservation Department survey has shown, the construction of new or expanded facilities is lagging far behind current and future needs, in every category of outdoor recreation. Therefore, as fast as land and development plans become available, construction and development of recreation areas should be pushed to the limit of the State's ability to pay them.

Only if these three courses of action are pursued in a bold, dynamic, and imaginative way, can the mounting demands for outdoor recreation be met in New York State.

Fishing-For-Fun

by John D. Gould, *District Fisheries Manager*

Something New Under the Fishing Sun Will Have Legislative Attention This Year

BACK in 1952, an almost heretical plan for producing trout fishing was proposed by Dr. Albert Hazzard, at that time Director of Michigan's Institute of Fisheries Research, and currently Assistant Director of the Pennsylvania Fish Commission. His proposal—catch all the trout you can but don't kill them; put them back. Al. Hazzard's suggestion, as can be imagined, was considered to be pretty fantastic.

"Where were all the fishermen," it was asked, "who would settle for this 'fishing-for-fun' idea; who would be happy to simply be out on the stream catching fish, with no thought of the freezer or frying pan in mind?"

Nevertheless, the idea took root and in 1954 the U.S. Fish and Wildlife Service gave it its first trial run, establishing two "fishing-for-fun" streams in the Great Smoky Mountains National Park—Bradley Fork in North Carolina and the West Prong of Little Pigeon River in Tennessee. To the amazement of many, enthusiasm grew steadily, and in 1955 additional mileage was added in the pilot program. It was not, however, until 1958 that any of the states picked up the ball. In that year, Pennsylvania's Fish Commission tried the plan out on the Left Branch of Young Woman's Creek. Here, too, the idea caught on and "fishing-for-fun" now has many staunch advocates in the Keystone State. It is not at all uncommon on this stream to have anglers report they have caught and released 30 to 40 trout in a day's fishing.

This year, sportsmen in New York will have an opportunity to decide if they would like a trial run—on certain specified limited stretches of first quality trout streams—of this unique type of fishing.

A bill has been submitted to the Legislature to amend Section 268 of the Fish and Game Law to provide that "The Department may by order designate sections of trout streams not exceeding ten miles in length and provide special fishing regulations for such sections. These special regulations may include designation of lure, season, size and creel limits. The total length of such sections" (in the aggregate) "shall not exceed 50 miles. . . ."

Now just why does the Department's Bureau of Fish feel that this legislation will be good for the fisherman? Well, it is no secret to the Fishery Biologist or to the present-day Izaac Walton that *good* trout fishing nowadays is hard to find. The reasons for this are many and varied, ranging from excess fishing pressure (a convenient but much overrated reason) to ever-changing patterns of land-use, pollution—both industrial and domestic—down to the fact that angling is one of the world's least effective means of catching fish. If today's large army of would-be "Izaacs" are to have the thrill of catching fish, which they do not need nor want for food, the Hazzard plan *may* be the answer on certain sections of high-class, self-maintaining trout streams. It certainly would appear to be worth a try.

The requested legislation is so worded that not more than ten miles of "fishing-for-fun" may be set up on any one stream. You will note also that there is a limit of 50 miles of this type of stream management for the entire State. Moreover, the requested legislation specifically and directly enables the private landowner to "include himself out" of a "fishing-for-fun" section if he so chooses.

In the Great Smokies and in Pennsylvania angler success was excellent, some poor fish being caught several times. So, fishermen, lie back and dream of the possibilities—no more fishing one or two hours for a "bite." Think of it—you may be able to catch three or four fish per hour of fishing effort! Does that beat your present score? There are all sorts of possibilities, not the least being the greater opportunity it would give the biologist to study the ups and downs of a trout population. By co-ordinating biological studies with angler activity, many facts concerning trout growth, migration, etc. could be determined. Biologists of the United States Fish and Wildlife Service and the Pennsylvania Fish Commission are already collecing information which will prove useful in the management of other trout streams in the future. In New York State, if the proposed bill becomes law, Bureau of Fish biologists plan to spend the current year (1960) making detailed studies of the designated stream (not as yet named) so they will have a basis for comparison when and if the "fishing-for-fun" idea becomes a reality.

New York State's present trout management program is designed to produce fishing for the great mass of license holders. The Hazzard type of fish management would make it possible to manage certain streams for top quality angling; the kind of fishing that existed in the "good old days!" Since only 50 miles out of the 7,171 miles of streams now stocked with State trout would be involved in this new program, no serious encroachment on general fishing opportunity would result.

One fact turned up on Pennsylvania's "fishing-for-fun" pilot stream was quite amazing. That state allows only fly fishing in Young Woman's Creek, yet in spite of this they reported the following: "The most startling development was the frequency with which family groups were observed. It was anticipated that this stream would be most utilized by the pro fly fisherman, but the 'pros' were actually outnumbered by 'Ma-Pa-kids' and all on camping-fishing trips. Much enthusiasm was found among parents teaching their children to fish for trout."

When we add it all up, it seems to us that the "fishing-for-fun" idea is worth a try. If you think so too—or if you don't—your views will be important with reference to the enabling bill before this session of the Legislature.

Housing for Ducks

by G. E. Cummings,
Conservation Biologist

HUMANS have housing problems —and so do ducks. Waterfowl are not only beset with drouth-stricken or drained marsh lands but even where water is present, nesting sites may be at a minimum.

Mallards and black ducks sometimes select upland nesting sites in meadows or woods but here the hazards are great from mowing, Spring plowing and roving ground predators. In addition, these sites may be some distance from the water which creates problems when the female leaves the nest to feed and when the newly-hatched young are ready to be led to the water. A nesting site over the water is preferrable, for there the duck is at home. Unfortunately, such sites are few and far between. Old stumps, tree crotches and muskrat houses may be used but these sites are often low, subject to flooding and convenient to muskrats as feeding stands. For the latter reason, nests may sometimes be disturbed or actually buried in residue from muskrat feeding.

Here's a partial solution to this problem that is being worked out at the 2,300-acre Oak Orchard Game Management Area in the Lake Plains District of western New York. During the Spring of the year, as the ice begins to break up and disappear, this area suddenly comes to life as thousands of migratory waterfowl wing north to their breeding grounds. Many mallards, black duck, blue-winged teal and wood duck don't bother to go any further. They select Oak Orchard as their home and seek out nesting sites to lay their eggs. Here, 30 per cent of the flowed lands have standing trees, some in extensive blocks. Construction of artificial nest sites in these areas gives promise of providing both safer and more widely distributed nesting for waterfowl throughout the tract.

The necessary prerequisites for artificial nest site construction are easy to come by—some old chicken wire, staples, hay or straw, a hammer, wire cutters and elbow grease. We have found, incidentally, that 1-inch mesh gauge poultry wire is the most desirable to use for nest forms, and that hay clings better to these than does straw. Procedure consists of selecting a clump of trees that lends itself to the stapling up of a wire nest form which gives the effect of a natural basket. This form is filled with hay or straw and shaped like a natural nest. Hay works better than straw as it is less likely to be blown out by the wind. Cattails, sedge and accumulated material from the pond bottom also can be used. The accompanying pictures illustrate the type of sites selected and the construction of the form.

The easiest time for nest site construction was found to be the Winter months when the marsh was locked in ice. Then a sled could be used conveniently to haul the materials and the necessary reaching in stapling up the forms is simplified.

Nest sites were established at all sorts of locations—some no more than a foot above expected high water, others as much as six feet above pond level; more than 400 forms have been put up at Oak Orchard.

To check the effects of these nest forms, each was numbered with an orange metal tag. During the first year, only 28 forms were placed to determine utilization. Of these, three were not usable due to lack of nest material. Of the remainder, 12 forms were used by mallards or black ducks. Encouraged with this apparent success, an additional 177 were erected during the Winter of 1956-57. All nest forms were then numbered and checked twice in the Spring during the nesting and re-nesting period. Of the total of 205 placed in the two-year period, 195 were located in the 1957 Spring survey. Of these 16 had no nest material remaining in the wire forms, or the forms had been destroyed by falling trees or limbs, but 75 of the 179 artificial nests remaining had been used. The following Winter (1957-58) an additional 200 were distributed throughout the area making a total of 405 available sites. During the Spring survey, 359 of these nests forms were checked; 31 were found unusable and 104 had been used. Some sites were used two and even three times during a single nesting season, although all were not successful attempts.

During the period of the study, it was found that the height of the nest from water level had no effect on utilization. However, nests were built from six inches to five feet above the water to reduce danger of flooding and predation. For convenience, all nest forms are now erected an average of three feet above the water.

We aren't saying that these artificial nest sites are the complete solution to the duck housing problem. Some were well received, others were not. Preliminary studies indicate that nest predation is reduced; probably can be reduced further by more intensive control of raccoons, mink and crows—the principal predators under these circumstances.

We do know that the ducks are using these man-made nests and that it's "low cost duck housing." The ease and simplicity of erecting these forms throughout the flooded wooded sections of the area make them a valuable management tool for increasing the nesting opportunity of mallard and black duck.

High - dry — and relatively safe nest site

Each nest site is marked for record-keeping purposes

Sprouted stump makes convenient nest cradle

Some Beetles of New York

by John A. Wilcox,

Associate Curator of Entomology, New York State Museum*

Lady Bug, Lady Bug,
Fly away home.
Your house is on fire,
Your children will roam.

Except little Nan
Who sits in a pan,
Weaving gold laces
As fast as she can.

SO goes one variant of the folk rhyme which has come down to us from ancestral Europe. The poem indicates an understanding of beetle life history—roaming larvae and the sedentary, yellow pupa, "Little Nan." The name, lady bug, was used long before biology became a science, but seems to show an awareness of the beneficial nature of these beetles.

Beetles make up the largest group of insects. M. D. Leonard, in 1926, in his "*List of Insects of New York*," recorded 4,546 species and varieties of beetles which had been found in the State up to that time. We can be thankful, indeed, that only a few beetles are harmful and that many are definitely beneficial.

Life histories of the beetles are all quite similar. It all starts with an egg, usually but not always laid during the Spring or early Summer. The larva, called a grub in some families, hatches and starts its search for food. The predaceous larvae are usually very active and long-legged. Those feeding on plants are slower, many having no legs at all. There is a great deal of variation in the length of the larval period. A few species reach maturity in about a month, others, especially some of the wood borers, may remain in the larval stage for two or more years. When the larva completes its growth, it usually seeks a secluded spot or forms a cell, if living in soil or wood, and changes to a pupa. The insect may remain in the pupal stage over Winter or go ahead and emerge as an adult beetle in a few weeks. Most adult beetles have feeding habits similar to those of their larvae.

Many of the beetle species listed here can be named from the illustrations (*see centerspread*) but some of the others are representatives of groups of quite similar species and more complete descriptions are necessary. There are so many species of beetles that no complete book covering all of them could be published. Books by Lutz, Jaques, Comstock, Borer and De Long, listed in the February-March, 1956, issue of THE CONSERVATIONIST, are helpful in identifying beetles.

The forty-three beetles which H. Wayne Trimm has so well illustrated, were chosen because they are some of the larger, more showy species or because they represent common or interesting families. Many of the names used with the illustrations are not specific and may be used for many relatives or even for all other beetles in the family with equal propriety. For example, the name, "rove beetle," is applied to any one of the 700 or 800 New York species, none of which are outstanding enough to have been given a specific common name. Consequently, we must use scientific names to designate many species.

TIGER BEETLES (Cicindelidae). These beetles are well named for their predaceous habits. The adults are very active, frequently seen running over bare ground, where they capture other insects for food. The larva waits at the entrance of its burrow in the ground and seizes passing insects. It has a strong hook-like spine on its back which serves as an anchor in preventing the larva from being pulled from its burrow. *Cicindela formosa*, illustrated here has a typical color pattern. The six-spotted tiger beetle *(Cicindela sexguttata)* is often seen in patches of sunlight in wooded areas.

GROUND BEETLES (Carabidae). This family is a very large one. Most ground beetles are predaceous, feeding on other insects. The caterpillar hunter *(Calosoma scrutator)* is one of the largest and most brightly colored members of the family. The bombardier beetle *(Brachynus fumans)* has the odd habit of emitting a cloud of irritating gas from the anus when disturbed. This seems to serve both as a means of offense and defense. A few of the ground beetles feed also on germinating seeds and may be destructive.

PREDACEOUS DIVING BEETLE *(Dytiscus harrisii)*. This species represents the family Dytiscidae which contains a moderate number of species ranging in size from the inch and a half of *D. harrisii* down to about one-thirty second of an inch. There is little variation in form in the family and only slight variation in coloration. Members of this family may be separated from the whirligig beetles by their undivided eyes and from the water scavengers by their long, slender antennae. Both larvae, called water tigers, and adults feed on small living animals in the water, including small fish.

WHIRLIGIG BEETLES. *Dineutes nigrior* is a common representative of the family Gyrinidae. Both the common name and the scientific family name for these beetles are derived from their habit of swimming in circles on the surface of the water. Their form is admirably suited to survival on the surface of the water. The eyes are divided so that one-half of each is below water and the other half above. Their vision is thus not impaired by the surface film. The middle and hind legs are flattened and paddle-like. These insects are predaceous, feeding on other insects.

WATER SCAVENGER BEETLES. The family Hydrophilidae contains a moderate number of species. *Hydrous triangularis*, which is illustrated, is one of the largest. Most species are uniform in color but some have brownish markings. They may be identified by the antennae which are shorter than the palps and which have the last few segments enlarged. The larvae feed on other aquatic insects and sometimes small fish. The adults, however, are scavengers, feeding on dead organic matter.

BURYING BEETLE (Silphidae). *Necrophorus americanus* is the largest species of a small family noted for its habit of feeding on carrion. Several of the species may dig the soil out from under a small carcass, such as that of a mouse or bird. As the carcass settles it may be covered with dirt, hence the name burying or sexton beetle.

ROVE BEETLES. The Staphylinidae is a rather large family of small or insignificant beetles. *Staphylinus maculo-*

(*Continued on page* 26)

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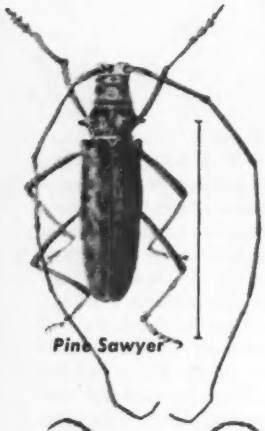
Some Beetles of

Predacious Diving Beetle

Whirligig Beetle

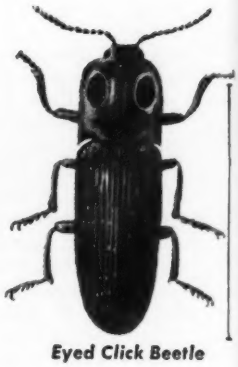
Water-Scavenger Beetle



Pine Sawyer

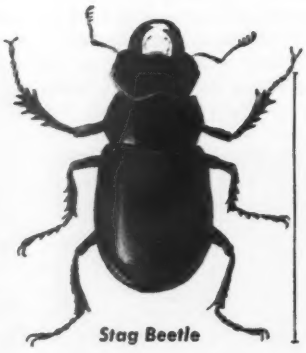
Unicorn Beetle

Burying Beetle



Eyed Click Beetle

Brown Prionid

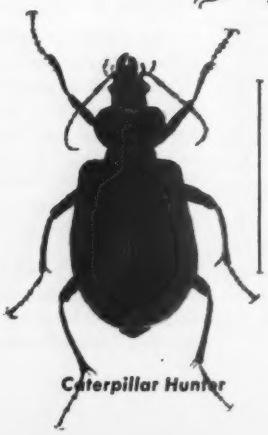


Stag Beetle

Horned Passalus

Dung Beet

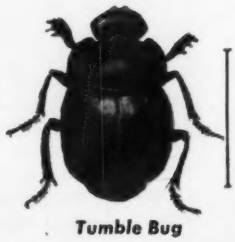
Virginia Flatheaded Borer



Caterpillar Hunter

Spotted Pelidnota

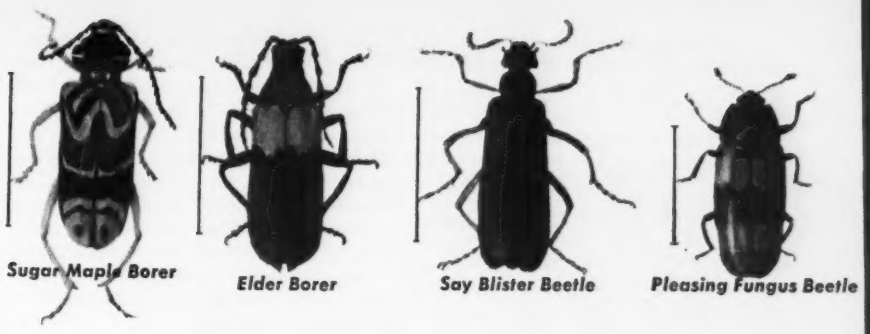
June Beetle

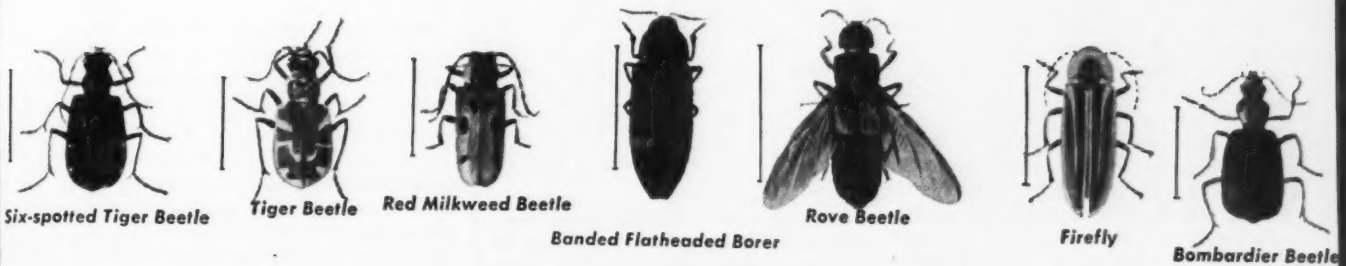


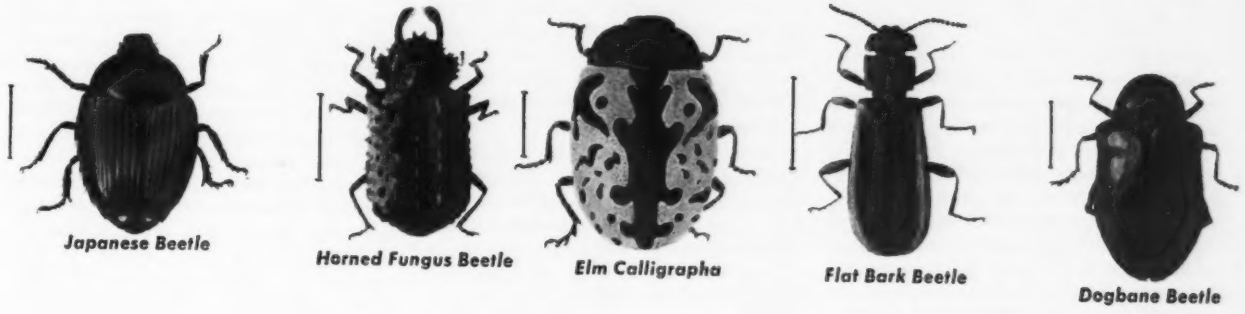
Tumble Bug

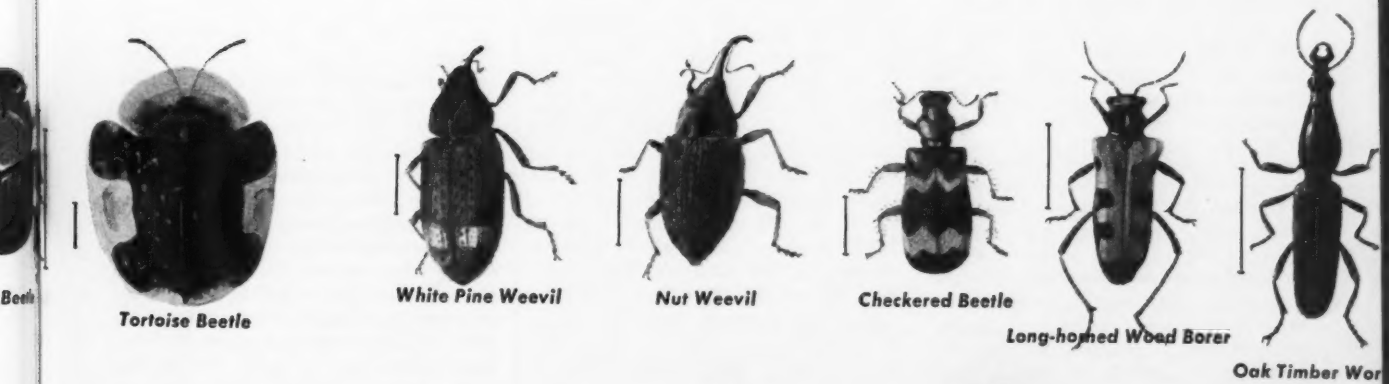
Wayne Trimm

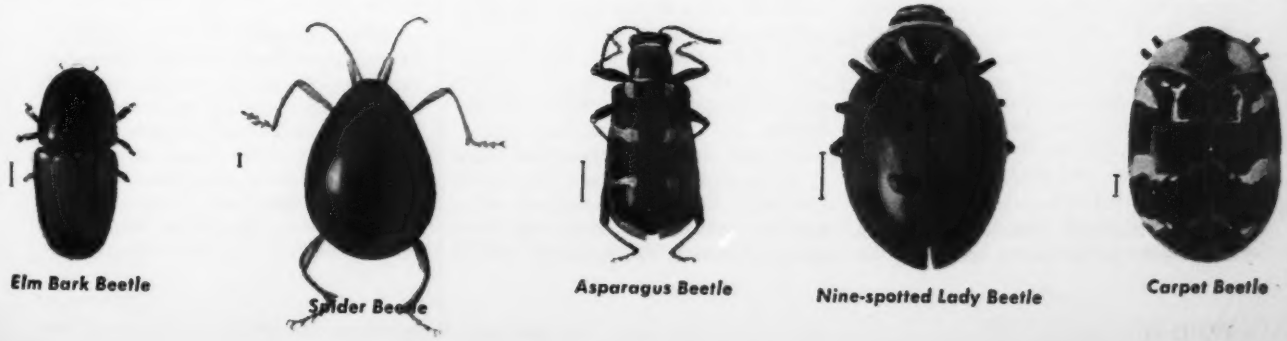
les of New York











(*Continued from page* 23)

sus is one of the largest. It is often seen on cow manure. Most species appear to be predaceous on other insects. They have very short wing covers which leave the last five or six abdominal segments exposed.

FIREFLIES. Most of the family Lampyridae are able to produce light. Because of this characteristic they have been given such names as fireflies, lightning-bugs or glow-worms. The species illustrated, *Photuris pennsylvanicus*, is one of the larger and more easily recognized. The light, produced by a sudden oxidation of a substance called *luciferin*, is remarkable in that very little heat is produced in the reaction. Flashes of light are apparently used by the insects as love calls enabling the flying male to find a female who usually remains in the grass. Each species has its own distinctive flash pattern so a male is attracted only to a female of the same species. In some species, females never develop wings. These females and larvae which give light are called glow-worms.

CARPET BEETLES (Dermestidae). Members of this small family are serious pests wherever animal or plant products are stored. The larvae are apt to damage furs and woolen products if measures are not taken to keep them out. Indeed, much of the "moth damage" found in homes is actually done by these beetles. *Anthrenus scrophulariae* illustrated here is the most brightly colored species in the family. Others may be mottled brown and white or all black.

CHECKERED BEETLES. Members of the small family Cleridae are small in size but are frequently bright colored. Most, like *Thanasimus dubius*, feed on other insects and are considered to be beneficial.

EYED CLICK BEETLE *(Alaus oculatus)*. The largest member of the family Elateridae, this insect always arouses interest when seen. The large eye-like spots are merely a part of the color pattern and have no connection with the true eyes. Click beetles receive their name from their unique habit of clicking which is done by snapping the head and prothorax downward. An audible click results and, if the beetle is on its back, it is flipped several inches into the air. At other times the action may serve as a defense from birds or small mammals. Larvae of the eyed click beetle apparently feed on other insects in decaying logs. Some other members of the family feed on roots and may become serious pests of grain crops.

FLATHEADED BORERS. The head and thorax of larvae of beetles in the family Buprestidae are much broader than the rest of the body and quite flat. Most species live between the bark and wood of trees where they sometimes do enough feeding to kill the tree. The Virginia flatheaded borer *(Chalcophora virginiensis)* is one of our largest. The banded flatheaded borer *(Buprestis fasciata)* is one of the more brightly colored species. Since many species have a very distinctive metallic luster, members of the family are called metallic wood-boring beetles.

PLEASING FUNGUS BEETLE (Erotylidae). Members of several small beetle families feed exclusively on fungi and common names for them may seem strange or awkward. This family, Erotylidae, contains some rather brightly colored, graceful species. *Megalodacne heros* is the largest and one of the commonest.

FLAT BARK BEETLES (Cucujidae). The few members of the family Cucujidae are mostly very small and dull brown or spotted in color. *Cucujus clavipes*, however, is medium sized and a rather startling dull red. They are usually found under loose bark of dead trees. Two or three small species of the family are pests in stored grain.

NINE-SPOTTED LADY BEETLE *(Hippodamia convergens)*. Members of the family Coccinellidae can be included with our most beneficial insects. Both adult lady beetles and their active larvae are predaceous, feeding on such soft-bodied insects as aphids.

SAY BLISTER BEETLE *(Pomphopoea sayi)*. This beetle, fairly typical of the family Meloidae, was named for the early American naturalist, Thomas Say. In the adult stage most of the blister beetles are leaf feeders. The larval history is very complex, usually including phases in which the larva is predatory or parasitic, some species feeding on grasshopper eggs. The bodies of a number of species in this family contain an oil which produces blisters when applied to human skin. The notorious "Spanish fly" from Europe belongs in this family.

HORNED FUNGUS BEETLE *(Boletotherus bifurcatus)*. This is a member of the large family Tenebrionidae. It is not a typical representative but is one which is frequently found on or in bracket fungi. As in many scarabs, only the male has horns on the thorax. The flour beetles and mealworms are members of this family.

SPIDER BEETLES (Ptinidae). Most of the species of this family feed on all sorts of dried plant materials. However, *Gibbium psylliodes*, illustrated here, usually breeds in rat droppings and its presence indicates that rats or mice are living in the vicinity. The wing covers are fused in this species and the head and thorax are small. In general appearance they look more like mites or ticks.

STAG BEETLE. There are only a few species in the family Lucanidae. *Pseudolucanus capreolus* is one of the largest and most common. The very large mandibles, which give it the common name stag beetle or pinching bug, are found only in the male. Adult beetles are often found around lights. Grubs live in decaying wood.

HORNED PASSALUS *(Passulus cornutus)*. Only one species of the family Passalidae occurs in the eastern United States. It is frequently found with its larvae in decaying logs.

SCARABS. Members of the very large family Scarabaeidae are extremely diversified in form and habits, so much so that some entomologists consider it to be a group of several families. The male dung beetle *Phanaeus carnifex*, one of the more brightly colored species, has a long slender horn on its head but females are not so provided. The tumble bugs, *Canthon laevis*, also live in dung. They form a bit of manure into a ball a little larger than themselves. They roll the ball some distance and then bury it in the ground. The eggs are laid in the ball and it becomes the food supply for the young grubs. The sacred scarab of ancient Egypt is closely related to our tumble bug. There are quite a few different June beetles. Their larvae, white grubs, live in the soil, frequently feeding on roots to the extent that they become serious pests. The species illustrated, *Polyphylla variolosa*, is one of the largest and most distinctively marked. The spotted pelidnota, *Pelidnota punctata*, is frequently attracted to lights. Its grub feeds in rotting roots of elm stumps while the adult is frequently found feeding on grape leaves. The Japanese beetle, *Popilia japonica*, is an introduced scarab which has become all too familiar. Although the unicorn beetle, *Dynastes tityrus*, is our largest beetle it is not of any economic importance. It may be found in the southern counties of New York State where its grubs live in decaying logs or stumps.

LONG-HORNED WOOD BORERS. The larvae of the large family, Cerambycidae, are mostly borers in trees and other woody plants. Many of these beetles are large and brightly colored and many do serious damage in our forests and woodlots. *Evodinus monticola*, yellow with black spots, is fairly typical of the family. The larvae bore under bark of hemlock, but the adults are fre-

quently found on flowers. The brown prionid *(Orthosoma brunneum)* frequently comes to lights; its larvae may be found in decayed hardwood logs. The pine sawyer *(Monochamus notatus)* attacks dying or recently killed pines; consequently it may be a serious pest in reducing the value of pine logs for lumber. Larvae of the sugar maple borer *(Glycobius speciosus)* work just under the bark of hard maples. Their tunnels are frequently extensive enough to girdle and kill branches or small trees. The red milkweed beetle *(Tetraopes tetraophthalmus)* is very common on milkweed, while the elder borer *(Desmocerus palliatus)* is quite common on elderberry bushes.

LEAF BEETLES (Chrysomelidae). This is a large family of small to medium sized insects which feed on leaves or roots of various plants. Many species are serious pests. The asparagus beetle *(Crioceris asparagi)*, introduced from Europe, has become common wherever asparagus grows. The dogbane beetle *(Chrysochus auratus)*, whose larva is a rootworm on dogbane, is one of our most brilliantly colored insects. The elm calligrapha *(Calligrapha scalaris)* which sometimes defoliates elm trees, is a close relative of the Colorado potato beetle. Tortoise beetles, represented here by *Deloyala clavata*, are leaf feeders on morning glories or solanaceous plants.

OAK TIMBER WORM *(Arrhenodes minutus)*. This is the only species of the family Brentidae found in the northeastern United States. The female is smaller and has a straight, slender snout. The larvae are borers in recently felled or dying hardwoods.

WHITE PINE WEEVIL *(Pissodes strobi)*. This is the most serious pest attacking white pine. The larvae work under the bark of the pine leader, girdling and killing it. Weeviled trees are apt to be forked or crooked and unsuitable for lumber. The family Curculionidae is a large one containing weevils which may also feed on roots, leaves, or seeds of various plants. They may be recognized by the long snout with small mouth parts on the end. In the nut weevil, *Curculio nasicus*, the snout is nearly as long as the rest of the body.

BARK BEETLES (Scolytidae). Most of these small cylindrical beetles live in or under the bark of trees where they may do considerable damage. The smaller European elm bark beetle *(Scolytus multistriatus)* is a very serious pest because it carries spores of the Dutch elm disease fungus to healthy trees, thus being one of the most important factors in spreading the disease.

Fulton Chain Salmon

by William A. Pearce, *Conservation Biologist*

YEARS ago landlocked salmon were present in fair-to-good numbers in many of New York State's waters. Gradually the numbers declined and by the early 1940's only occasional specimens of salmon were caught in a few of our waters.

In 1944, legislation paved the way for an intensive salmon research program. Dr. John R. Greeley, Chief Aquatic Biologist for the Conservation Department, undertook the job of trying to improve New York's salmon fishing. His thorough study provided this State, as well as fisheries workers in other areas, with much needed basic and practical information on salmon management in our inland waters.

Because of an insufficient supply of eggs from New York's remaining landlocked salmon, the eggs from sea run Atlantic salmon were obtained and reared. As mentioned in Dr. Greeley's article "Salmon in New York," THE CONSERVATIONIST, April-May, 1954, the young of Atlantic salmon cannot be distinguished from landlocked progeny.

As the hatcheries were able to produce more salmon, the number of waters where experimental stockings could be tried was increased. One such group of waters was the Fulton Chain of Lakes, located along Routes 28 and 365 from Old Forge eastward for about 20 miles. Here, in 1953, some young (2½-inch) Atlantic salmon were stocked in tributaries of the Fulton Chain. In 1955, a few legal-sized salmon were reported caught. Since 1953, the Fulton Chain system tributaries have been stocked regularly with young salmon averaging from 2½ to 3½ inches in length.

Small salmon cannot be dumped in one spot, but must be well scattered in the stream. Local sportsmen have been very co-operative in helping to stock the salmon properly. Salmon grow slowly in the hatchery and streams but move into the lake when they are about 5 inches in length. Once in the lake, they grow at a phenomenal rate, if conditions are suitable.

Each year since the initial stocking, more and more salmon have been reported caught in the Fulton Chain. During 1958, a considerable number were reported caught or checked by a biologist, mostly in Sixth and Seventh lakes of the Fulton Chain.

During the Winter of 1958-59, we waited anxiously for salmon season to open to find out if the salmon fishing would continue to improve. At first, fishing success was kept a secret by many anglers, but it soon became apparent that many limit catches of salmon ranging from two to seven pounds were being taken and salmon fishing in that area was considered excellent by many anglers.

One of the encouraging aspects of salmon fishing in the Fulton Chain is that you don't have to be an expert to catch one. I have seen several caught on the lowly worm. They hit spinning lures readily and afford excellent angling at times for the fly fisherman. However, the majority have been caught on minnows or smelt.

We sincerely hope the salmon fishing in that area continues to be as good as it was in 1959. We would appreciate greatly having anyone who caught a salmon last year write to Dr Greeley, N.Y.S. Conservation Department, Albany 1, N. Y. and let him know where and when he caught it as well as how big it was. For those of you that catch one in the future, please also enclose some scales from the side of the fish in order that we may determine its age and general condition.

Remember, salmon must be 15 inches in length and the limit is two a day. They are easily distinguished from the rainbow trout by lack of black spots in the tail (most rainbows have heavily spotted tails). If you fish the tributary streams of the Fulton Chain, handle all fish carefully and return any young salmon caught to the stream immediately. We can't always insure good fishing, but with your co-operation, the salmon's co-operation and proper management, our batting average will be much better.

Winter Feeding of Pheasants*

by Dirck Benson, Stacy B. Robeson

EVERY Winter, following heavy snows, and glazing ice, there is a scurrying rush of people to feed the birds. Gazing out the window from our comfortable, heated houses, we are filled with compassion for the creatures of the wild. Just now there is nothing wrong with this; we're bird feeders, too, but in the case of pheasants, how important is this artificial feeding? Over the years, wildlife biologists have gleaned a few facts that will be interesting for you to consider.

Animals thrive best in the climate to which they are best adapted. Some like it hot, some like it cold; some are happy in arid regions, while others like it wet. The pheasant, when brought to North America, was introduced to nearly every conceivable environment. Where they found the right combination of food, cover, temperature and precipitation throughout the year, they became established. In some areas, the initial stocking prospered spectacularly and the pheasant became an important sporting bird. In others, success was only moderate and in still others, the pheasants lingered awhile only to disappear when a few seasons of adverse weather occurred. Adverse weather is sometimes in the form of snow or ice, although in New York we are fairly sure that cold, wet weather during the pheasant nesting and early rearing season is the most severe handicap.

Whatever the causes, pheasants are constantly subjected to the vagaries of their environment and its selective pressures. After more than 50 generations in New York, it stands to reason that these assorted forces have tended to select a strain of pheasant fairly well adjusted to the New York habitat.

Long before Winter sets in full-blast, pheasants have moved from their Summer range to Winter quarters. This may be a large marsh or swamp with adjoining grain stubble supporting hundreds of birds. Or it may be a short piece of hedgerow with a grapevine tangle near a small patch of standing corn, just large enough for half-dozen or so pheasants. Whatever the nature of the individuals—overly gregarious or anti-social—once well settled in a unit providing escape cover, shelter from the elements and a reasonable food supply, they are not likely to range far from their chosen niche when Winter winds are howling. Even free board will lure few from the safety and security of their Winter homes. One piece of cover in Monroe County, a scant mile by two miles in area, had 16 wintering groups of birds from which ranging pheasants only overlapped in good weather. Thus, for any artificial feeding of pheasants, you must go to them—they won't come to you.

Conceding that the logistics of Winter feeding make it a pretty unwieldy task, let us ponder whether the pheasant really needs that handout. During the Winter months of 1939 through 1941, some 170 pheasants, found dead in various areas of their natural range, were shipped to the Conservation Department's Wildlife Laboratory at Delmar for autopsy. Only 22 of these were deemed to have suffered from malnutrition. Of these, nine had suffered mechanical injuries leaving only 13 where the loss might possibily have been charged to starvation. The circumstances in which some of these birds were taken indicated that starvation was possibly due to the birds having been "sleeted-in" with their feathers frozen to the crust. During other years, including several with moderately severe Winters, pheasants numbering well into the hundreds have been examined by Department biologists. In very few instances have such birds been at starvation weight levels and even in those cases, old mechanical injuries and parasite infestations appeared more responsible for death than did starvation.

In reviewing these studies, we are not implying that pheasants do not lose weight under adverse weather conditions. Upon entering the Winter season, the average wild cock pheasant in fine fettle weighs from two and a half to two and three-quarters pounds while the hen averages almost two pounds. Many Winter road-kills and trapped birds examined had lost 20 to 25 per cent of their normal Fall weight. Such weight losses, however, are not at all critical. In a series of controlled Winter feeding experiments, it was found that pheasants, subjected to starvation conditions, could lose as much as 40 per cent of their body weight and still recuperate when placed on normal rations. Death from starvation occurred when the birds had lost about 45 per cent of their weight but that was after

*This article is based on studies conducted by the Conservation Department under the P.-R. Federal Aid in Wildlife Restoration Program.

some 19 days without any food at all. Weight losses during the first five to 10 days were slight and under normal Winter conditions such losses were regained in less than two weeks. Moral, of course, is that severe conditions lasting up to a week hardly affect the pheasants at all, for that cagey and adaptable bird will always find some food, no matter how slim the "pickings."

Prolonged adverse weather may result in lowered pheasant weights and perhaps corresponding reduced resistance. On the contrary, breeding experiments following Winter feeding studies show that birds whose weights were maintained at a low level through the Winter months laid just as many eggs with just as high fertility and hatchability as those that had lived a life of luxury all Winter. Furthermore, the survival of the chicks during the first four weeks after hatching showed equal, if not slightly greater vitality in those produced from pheasants that had spent the Winter on reduced rations. It would appear that a little adversity tends toward the beneficial side.

The Winter season, however, still is a rough period for the pheasant even though food supplies are not a serious problem. Studies of population units around the year have shown that under normal conditions the population from one April to the next will remain fairly constant. Additions to the population from the Summer season (along with losses) will give a September population about two and a half times the April level. From then to December, (which includes the hunting season) there will be a substantial reduction of the cocks and a much lesser loss of hens leaving a total population about double the expected April level. Obviously then, the really wintry months are going to just about cut the pheasant population in half. Strange as it may seem, this 50 per cent reduction takes place whether the Winter is harsh or mild, and whether predator populations are up or down. In years when the pheasant population is high, the reduction will exceed the 50 per cent figure since numbers almost invariably are reduced to the expected April level. Improving food supplies artificially and conducting predator control programs have not been effective in changing this expected reduction, but habitat improvement work, on the contrary, has been demonstrated to be a successful means of increasing the Winter carrying capacity of the pheasant range.

That habitat improvement increases the Winter carrying capacity is not at all unusual or strange, for good cover reduces the susceptibility of pheasants both to weather factors and predation. The real Winter hazards to pheasants are sleet and fine blowing snow. Sleet may cause the pheasant trouble both on the night roost and as they move out to feed. Fine blowing snow, which can clog the nostrils and cause suffocation, is usually a problem as the birds are going to or from their feeding grounds. Adequate habitat provides the shelter that makes these weather factors only minor hazards. The creatures which prey on pheasants do not rely on these birds as a staple but enjoy them as an occasional luxury. In poor cover, foxes catch pheasants without too much difficulty and find it worthwhile hunting them. In good cover, the effort expended exceeds the value of the catch. Hence, if you really want to help the pheasant in Winter, create good habitat; don't attempt to lure them away from good habitat to artificial foods, and don't tempt them to the road shoulders where road-kills are all too frequent. Artificial feeding doesn't hurt the pheasants provided it is placed in their normal wintering habitat.

"Porkies" and Trees

There was a day when the porcupine was considered a protected animal, protected by the code of ethics of the woodsman or wilderness voyager who recognized it as one animal that could be easily killed for food if a man were lost and in need of food. Wilderness areas not being as remote now and the chances of getting lost for long periods much less—the old code has been, for the most part, forgotten.

Now the porcupine is looked on as one of the woodland denizens who plays a specific role; a role often contrary to the best interests of man and his ideas for proper management of natural resources —plant or animal. Man looks at the porcupine critically when he commits a nuisance, especially in camp, where anything wood and some things metal disintegrate between his powerful incisors. Man realizes too that "porkies'" natural enemies are few—the fisher, the great horned owl or the bear may risk their health to take one or two but they hardly make a dent in the population.

The forester knows, however, that porcupines can cause considerable damage in managed forests or plantations. Porkie is a most efficient eating machine and spends the major part of his lifetime doing just that. When his fancy takes him to the tops of maturing timber trees, where he neatly girdles and kills the crowns, control becomes necessary. Over the years many methods of control have been tried—men assigned to shoot or trap them, bounties, etc., but most have met with limited success and all have been time-consuming and the bounty, as usual, has been abused.

Recently, Vermont experimented with other forms of control after determining the areas where the animals were in over-abundance and causing damage. Their control program consisted of a force of four men for a fourteen-week period—December to April—when the majority of the animals are denned up in concentration areas. The crew was trained in the use of apples treated with a specific formula of sodium arsenite and sugar. The baits were distributed only to active dens and then placed well back in the den to keep them from other forms of wildlife. The crew also used .22 rifles for animals that could be taken by shooting.

This program, conducted on 64,800 acres in over a period of two years gave an estimated 100 per cent control on approximately 28,190 acres and 80 per cent or better on approximately 36,610 acres.

Trout Fishing Through the Ice

—Pro and Con

by Robert G. Zilliox, *District Fisheries Manager*

A WAG once defined an expert as an undesirable individual hailing from out of town. If there are any experts in New York on the subject of fishing through the ice for brook trout, it is most probable that they would fall into this classification. Since at least the early 1900's it has been illegal to take fish through the ice in waters inhabited by trout, unless the Department shall first make an order specifying the waters and fixing the seasons. Until the Spring of 1957, no record had been unearthed of any such order pertaining to a brook trout water. It is logical to assume therefore, that little if anything is known about Winter trout fishing, at least by the law abiding citizenry of New York.

Many opinions can be obtained in the Adirondacks concerning the vulnerability of brook trout during the ice cover. As is usually the case, speculation runs the gamut from: "they will not bite worth a darn" to "it's a cinch to fill a pack-basket." While most opinions are based upon tales from another century, probably many have been unknowingly influenced in this matter by A. F. Tait's painting, "Trout Fishing on Chateaugay Lake," (1856); depicting two anglers having moderate success ice-fishing for brook trout.

With the trout season opening on the first day of April, a month or more may pass during a normal Spring season before the ice is out of many Adirondack trout ponds. Even though the trout season is open, the Conservation Law prohibits angling in trout waters when ice covered. And trout water is defined by the law as that inhabited by brook, brown, rainbow trout and splake, singly or collectively. Lake trout is not defined as a trout insofar as the Conservation Law is concerned. Thus, many lake trout waters can be fished through the ice and lake trout can be taken in this manner starting April 1. If in doubt as to whether a body of water is classed as trout water, consult the local Game Protector.

If we once had a reason for prohibiting fishing through the ice in trout waters it has been lost in the annals of time, so it was appropriate and desirable to collect some data on the situation. Accordingly, on the opening day of trout season in 1957, three trout waters in Franklin County were opened by Department Order, enabling anglers to fish through the ice. General information obtained by fisheries biologists and game protectors at this time indicated the desirability of a more thorough study. During January 3-March 24, 1958 and January 14-23, 1959 biologists ice fished for brook trout in one of these waters. Using marking and recapture techniques, *(see photo)*, the legal population of brook trout was estimated in this water, referred to as Pond A. On the first week end of the 1958 trout season (April 12-13) when

Keeping the catch on ice

Pond A had a good ice cover, a creel census contacted 186 anglers who creeled 147 brook trout. Based upon the marked fish recovered by anglers, this represented a harvest of 50 per cent of all the legal trout in that pond. In 1959, the creel census was conducted on Pond A during the first four days of the trout season (April 1-4) with good ice conditions prevailing. A total of 125 anglers creeled 215 legal brook trout during the four-day check period. Based upon marked fish recovered by anglers, this represented a harvest of 65 per cent of the legal trout population. Since anglers arriving at midnight and leaving before 5 a.m., were not contacted by the biologists, the total recorded catch of brook trout for both years is minimal. As is usually the case, a small percentage of anglers caught most of the trout.

In addition to Pond A, ice-fishing experiments were conducted during 1958 and 1959 in three other Adirondack brook trout ponds by Adirondack Fisheries District Biologists. None of the biologists had prior experience in this type of angling. An average of six fishing trips was conducted on each pond during the two-year period. In the course of 26 ice-fishing trips to these typical Adirondack brook trout ponds of 50 acres or less, between 5 and 57 per cent of the legal population of a pond was captured by angling in any one trip. The catch per hour per trip varied between 1 and 26 legal brook trout. On some Winter days, phenomenal fishing success was enjoyed. One February day, two biologists caught 79 different legal trout in 1½ hours. There is no question but what this is a deadly method of capturing brook trout, with little skill required to soon learn the combination. Paul Neth and Bill Youngs, the biologists who collected the bulk of the field data in zero and sub-zero temperatures, should now rate as "Arctic biologists." While this dubious title carries no extra stipend, it will soon have to be acertained if they have thawed out sufficiently from the 1959 field work to start the 1960 work.

Ice-fishing provided some oddities. In Pond A, two brown trout, approximately three pounds apiece, opened their mouths when they should have kept them shut. The stomach of one brownie was so distended that its content was investigated. Two large frogs had fallen prey to this hungry trout. Examination of some brook trout stomachs during the Winter period showed that the trout were feeding under the ice and that trout food of various forms was available. Just what the rapidity of digestion and rate of food conversion are, at under-ice temperatures, is not known. Various lures, bait and angling methods were used during the study. Occasionally, some fishing holes were baited with hatchery trout food. The proverbial alder branch, piece of string and bent pin could probably hold its own against any type of fishing gear in a brook trout ice fishing derby. It is planned to acquire additional technical data during the ice cover of 1960.

If one were advocating ice-fishing for trout, it could be said that it would provide a longer period of fishing opportunity and that it is an excellent method of exploitation. Objections could also be noted! And has been demonstrated, it is possible to remove better than 50 per cent of the legal trout population during a single week end in a typical Adirondack trout pond. Due to the time of year of ice cover and road traveling conditions, fishing pressure would come from and resultant trout harvest go to local anglers primarily. Certainly the first 50 per cent of a fish population enters the creel more easily than the last 50 per cent. This could mean that later in the Spring when the majority of trout fishermen are afield, carrying boats and camping equipment to the ice-free ponds, the cream of the fishing would have been siphoned off prior to their arrival.

Our ice-fishing data would seem to indicate that fishing through the ice for trout, other than for experimental studies, does not appear a necessary or desirable management method. The present length of season and limit of catch provides remunerative pond fishing and supplies a reservoir of trout of various ages for the angler after the ice goes out. Perhaps fishing through the ice for trout can best be summed up in the words of an old British Army acquaintance, who, apropos a couple of fifths of tea that had disappeared from his quarters, remarked, "I say old chap, this doesn't seem quite sporting, you know."

Pre-season marking of brook trout

the back of the book

Ant dilemma

Much controversy has arisen over the recent program to control the imported fire ant in the southeastern United States. At the present time there is heated controversy over which is the worst—the fire ants or the pesticide controls that are being used against them.

By contrast, ants in Germany are being given a useful role. According to a survey of German affairs, a recent report relates as follows: "The most radical population shifts in the Federal Republic today are being made by ants, it has just been revealed. In two large operations, millions of ants have been moved from areas where there was a surplus and deposited in sparsely populated regions. Just recently 20 large barrels of red ants were moved from Julich to the Kempen area, where their function will be to help a burned-over region recover from a bad forest fire in 1947. The second vast upheaval in West Germany has occurred outside of Mannheim, where 15 million black ants, purchased appropriately enough in the Black Forest, have been delivered. Their job is to combat certain insects attacking in particular the fir trees and at present endangering the forested areas of the region."

Interest

Two Foresters from District 12 (Poughkeepsie) took turns last Summer traveling to the De Bruce Boys' Conservation Education Camp in the Catskills to instruct the boys in forest management. They observed that there was more interest than usual, especially from the city boys. One reason, we think, is the excellent co-operation received from the Foresters and other district field men of the Department who squeeze out the time from their regular duties to handle instruction at this and other Department conservation camps.

Too many deer

The impact of Wisconsin's high population of deer is having a disastrous effect on sustained forest management, according to representatives of companies owning millions of acres of forest lands in that state.

A survey showed that the commercial forests have sustained damage on 39 per cent of their holdings by deer browsing.

This damage includes destruction of young trees, development of brushy type trees that cannot produce wood products of commercial value and changing of the forest tree composition to species of low value. The preferred browse trees of deer are species of most value to the forest owners.

Forest fires—'59

The number of forest fires in New York reported in 1959 was 20 per cent below the annual average for the five preceding years, and the total area burned was 36 per cent below the previous five-year average.

Fire losses in the Forest Preserve were especially low with only 37 fires being reported. Two of these fires were in the Catskills and burned only one acre and in the Adirondacks, 35 fires burned 52 acres.

A total of 1,072 fires were reported throughout the State that burned 10,499 acres with an average size of 9.7 acres. Of the total area burned, 2,781 acres were grass and waste land and 7,718 acres were forest land. The forested area burned represents .06 per cent of the total forest area protected. The value of the forest products damaged or destroyed is estimated at $48,074.

For the past two years exceptionally wet weather during the critical fire periods has brought the losses to well below average and we shouldn't let down on our vigilance because the Spring fire season will soon be at hand and—it could be a dry one.

Woolly aphid

Many have noticed the cottony substance appearing on balsam limbs and twigs. This is the balsam woolly aphid (*Adelges piceae*) and in some areas it is the cause of serious concern. This aphid is considered to be one of the two insects causing heaviest losses to fir production in the Northeast.

A study is now in progress (Canada) to see if an imported predator of the aphid may not be the answer to control. A dipterous predator from Germany is already being experimented with in Maine.

Duck stamp decline

A decline in sales of the new $3 migratory waterfowl hunting stamps, or duck stamps, of as much as 30 per cent has been reported by the U. S. Fish and Wildlife Service. According to the Service this may very well be the result of a reduction in the number of hunters from a year ago because of the shortened seasons and the cut in bag limits put into effect when surveys indicated a slump in duck production in the Prairie Provinces.

The Service has indicated that if the current stamp sales trend continues, it will seriously impair the wetlands acquisition program—the very reason for which the increased stamp fee was established. The expanded acquisition program was set for an estimated income of $6 million but may very well fall short by as much as $1.5 million.

Unfortunately, wetland areas which cannot be purchased in the immediate future to perpetuate the flights of migratory waterfowl through a system of nesting, resting and wintering grounds, will most likely be lost for waterfowl management. The encroachment of agriculture, industry and suburban delevopment into the wetlands areas is increasing at a phenomenal rate each year.

A Cons. Assembly Program

(*Continued from page 3*)

4—There is a continuous need for new and better conservation literature, films, filmstrips, and other teaching aids. We should encourage their production and *USE*. Sportsmen's clubs can sponsor field trips and visit classes to help individual teachers. Every classroom holds a potential of 25 or more conservation-minded citizens.

While the fulfillment of these goals moves slowly forward, every effort must be made to make the present program more effective through voluntary aid to teachers. This study has proven the effectiveness of an assembly program designed to interest students and teach principles of conservation. Eighty per cent of the students said the study of conservation was more interesting because of the co-ordinated assembly program. Ninety-three per cent of the teachers would like the service† continued.

Two or three assistantships for graduate students could be established at State universities for the purpose of continuing this program, or a specialist might be hired full time. If three graduate assistants were to spend two days a week visiting schools for 35 weeks, they would, by the end of the school year have appeared before an estimated 99,000 students in an assembly program and more than 600 teachers would benefit from personal counsel with the specialist.

What would it cost? Here is an estimate based on my three years of experience:

Initial cost of properties—including projector, magnet board, demonstrations, etc.	$ 500††
Transportation	275
Meals and lodging	220
Mimeographing, postage, misc.	30
Total expense	$1,025
Honorarium or assistantship salary	2,100
Total cost for first year per assistant	$3,125

This is less than the cost of producing a comparable motion picture or bulletin series, and it provides *personal* contact between the specialist and the teacher. A little division shows that during the first year (the most expensive year) it would cost about $45 per assembly program,††† $15 per teacher, and less than 1c per student!

Although it would cost nearly $10,000 to initiate three such assistantships, I believe that it would be difficult to gain as much conservation education value by spending this money through other media. Also, this cost could be cut by charging $25 to $50 for non-school performances.‡

Perhaps you, the reader are thinking that this approach to conservation education is new and unusual. It is. But, it is time that something new and unusual be done to stimulate the teaching of conservation in the schools of this State. We cannot afford to continue to drag our feet in this vitally important field of education.

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†Assembly program, classroom visits by specialists, teacher counseling and assistance in planning a unit of conservation.

††After the first year $75 would maintain and repair the equipment.

†††Professional touring assemblies generally cost between $30 and $50.

‡It is not advisable to charge the schools as many smaller schools have no budget for assembly programs. They should not, however, be denied the service for that reason.

Bucket stand

Hunters, especially archers, often take to a tree stand in hunting deer to secure a better view of the surrounding terrain. Also, animals are less likely to scent them.*

At the DeBar Mountain Game Management Area in Essex County the woods crew had been working with a bucket loader on road repairs. The machine was idle but operative over a week end and a couple of enterprising hunters moved it to a good location near some deer trails, raised the bucket to its limit of some 12 feet, then climbed into the bucket for a mechanically-elevated deer watch.

There was no evidence of their getting a deer. If they had, the loader would probably have been used to bring it out.

** Ed. note: Not too healthy during the gunning season; at least two tree-perched hunters lost their lives this past season when mistaken for bears.*

Christmas puppies

Americans spent an estimated $40 million for Christmas gift puppies and a host of accessories that go along with owning a dog, according to estimates made by the Gaines Dog Research Center of New York. They estimated that 750,000 puppies went into Christmas stockings in 1959.

Headstone tree

In southern Onondaga County on a State Forest tract, formerly farmland, is this 116-inch circumference white pine, growing less than two feet from a gravestone bearing the name Lydia, wife of John Hodgson, 1828.

Was the seedling planted next to the headstone in 1828, or was the stone moved nearer to the then young pine, say about the time of the Civil War? Since 1828 is 131 years ago, the tree could have been planted with loving care next to the fresh grave.

National wildlife week

"Water—Key to Your Survival" has been selected as the slogan and theme for National Wildlife Week. Observance is scheduled for the week of March 20-26 under the sponsorship of the National Wildlife Federation and its affiliates in 49 states and the District of Columbia.

Plans for the observance include the selection of state chairmen from every state who will work through some 2 million individuals who are members of National Wildlife Federation Affiliates. Local education campaigns in the form of talks, exhibits, demonstrations, special newspaper articles and radio-TV interviews will further acquaint the public with the vital necessity of conserving and improving the Nation's water resources.

Army recreation

The U.S. Army has 110 installations in the U.S. of adequate size for hunting and fishing, according to recently compiled statistics. Of these installations, 84 are open, at least in part, to hunting and fishing. Some 5,600,000 acres of land under Army jurisdiction are open to hunting by both military personnel and civilians under varying degrees of control. Approximately 400,000 acres are open only to military personnel and about 1,000,000 acres are closed to all hunting.

Jungle shelters

Winter food and cover are major limiting factors to rabbit abundance in most localities. The jungle shelter offers a quick and easy method to provide both for several years. This term applies to a loose brush pile created by lopping all the trees in a 20- to 40-foot circle toward a common center. It is particularly effective along a woods' edge, gully and in pole stands.

The shelter will be a more lasting haven from enemies if the trees are cut just part way through and then pushed over—leaving a bridge of bark and sapwood intact (*inset*) to keep the trees alive. This cutting will open up the forest canopy and permit sprouts and briers to volunteer, contributing to the density of the ground cover and reasonable food supply.

Careful selection of the location for the jungle shelter can make a big difference in their attractiveness and value for rabbits. Also, by choosing those tree species to be felled which offer favored twigs, buds and young bark, the tops will provide both food and cover in a single unit. Trees such as apple, the maples, oaks, basswood, and sumac are especially good. By selecting spots where grape vines are growing, improved shelters can be created. The vines—left uncut—will grow over and through the tops, adding to the tangle.

The best time to create jungle shelters is in the Winter when the tree tops provide a needed food supply near protective cover. Just make the shelter and leave the rest up to the rabbits. In most instances you will find evidence of use the first night after cutting. Once installed, they are good for several years.

Prescription

"A nation which consumes 15 tons of aspirin per day cannot afford to surrender its outdoor recreational opportunities."—R. W. ESCHMEYER

Blessed event?

A United Nations Survey has revealed that human populations are increasing at the rate of some 5,000 persons every hour. At this rate, the world population will be doubled by the year 2000.

Channel cats

Recent fisheries experiments with channel catfish in New York farm ponds have given relatively poor results. Ten ponds were stocked as early as 1952 and of these, five failed and one was discontinued. Of the remaining four ponds, some reproduction had taken place by 1958 but angling success has been poor and most owners expressed dissatisfaction with the results. It would seem doubtful, from these results, that channel catfish are suited for stocking in farm ponds of this area.

Forest fertilization

Fertilizing trees may soon become an important tool of modern forestry—or tree farming. As with production of agricultural crops, efficient forest production comes from management applied not only to the growing plants but to the soil itself. So says the American Potash Institute in a recently published handbook on forest fertilization.

The use of fertilizer is well established in forest nurseries, although frequently too meager to offset the annual nutrient drain from the soil. Nursery soils usually require more fertilizer than such farm crops as cotton and corn.

The dry weight of an annual crop of southern pine seedlings may exceed 8 to 10 tons per acre, and since almost the entire crop is removed, very little crop residues are left in the soil. Such seedling crops remove up to 250 pounds of elemental nitrogen plus about 150 pounds of potash and possibly a similar amount of phosphorus per acre.

Much basic and applied research must still be done to formulate efficient prescriptions for seed orchard fertilization to produce consistently high quality, husky, drought-hardy planting stock in forest nurseries.

Christmas tree fertilization looks promising. This is now a multi-million dollar industry, producing more than 40 million trees annually. An investment of one or two pounds of fertilizer per tree may mean one or two feet added height in 5 to 8 years, plus a healthier appearance.

Fertilizers might be used to increase the effectiveness of plantings for erosion control as well as to grow commercial timber crops on poor lands close enough to mills and plants to reduce transportation costs. It may also pay dividends in getting seedlings off to a vigorous start on low-fertility sites.

Harmony

"Conservation is a state of harmony between men and land. By land is meant all of the things on, over or in the earth. Harmony with land is like harmony with a friend; you cannot cherish his right hand and chop off his left. That is to say, you cannot love game and hate predators; you cannot build the forest and mine the farm. The land is one organism. Its parts, like our own parts, compete with each other and co-operate with each other. The competitions are as much a part of the inner workings as the co-operations. You can regulate them—cautiously—but not abolish them."—ALDO LEOPOLD

World Forestry Congress

The Fifth World Forestry Congress will be held on the campus of the University of Washington from August 29-September 10, 1960. This is the first such Congress to be held in the Western Hemisphere. Previous congresses were in Rome, Italy, 1926; Budapest, Hungary, 1936; Helsinki, Finland, 1949; and Dehra Dun, India, 1954.

The purpose of the Congress is to advance the science and practice of forestry in its broadest sense by providing an opportunity for the exchange of information and the development of ideas on a broad international scale. In addition, it provides for the development of personal associations between leaders and technicians in forestry on an international basis to stimulate and foster international cooperation in the proper development and use of the world's forest resources which occupy one-third of the world's total land surface.

Special emphasis will be given to problems of multiple-use of forests and associated lands, not only for the production and utilization of wood and wood products, but also for forage, conservation of water and the development of recreational facilities including fish and wildlife management.

Many countries will send official delegations to the Congress but all persons interested in forestry and related subjects are welcome to attend. Some 80 governments within the United Nations family have been invited and indications are that 1,500 to 2,000 persons from 55, to 60 countries will participate.

Complete information on the Congress, including instructions for contributors, can be secured from the Executive Secretary, Organizing Committee, Fifth World Forestry Congress, Department of State, Washington 25, D.C.

Let's face it

At Limestone, in Cattaraugus County, the school system was faced with the perennial problem of attendance—or lack thereof—on the opening day of the deer season. Students and teachers alike in this county find hunting the whitetail educational, and certainly the equal of any physical education program for keeping in shape.

Rather than to see the classes at half number, the District decided it might just as well close shop for the day—and it did. The day will be made up later in the year and it's doubtful that anyone will complain. What better way to get a full day's schooling in a wonderful type of outdoor recreation?

Coyote foods

The Department of Conservation at Cornell University, in co-operation with the State Conservation Department, is studying the population dynamics and food habits of the coyote. Dr. W. J. Hamilton, Jr., eminent zoologist, has thus far examined some 500 coyote stomachs and droppings and it's interesting to note the per cent of occurrence* of certain food items.

Mammals came in for 61.4 per cent with 20 species represented. Highest were varying hare (34.2 per cent) and deer (22 per cent). The latter represents a large amount of carrion in the form of Winter-killed but not retrieved, animals. Fruits were represented by eight species and 28.2 per cent; green grasses, 16.6 per cent; birds, 6.4 per cent; insects, 7.6 per cent; snakes, 2.6 per cent; frogs, 2.0 per cent; poultry, 1.4 per cent. Other minor items of less than one per cent were sheep, snails, garbage, crayfish, toads, earthworms and turtles.

**Per cent of occurrence is not intended to total 100 since each specimen may contain material assignable to several of the food categories.*

The Indian tipi (tepee)

Tipi is a Sioux word, meaning "to dwell in," for the lodge used by that nation (the Dakota) and most Indians of the Great Plains because they subsisted almost entirely on the vast herds of Buffalo which they followed from place to place. The Ojibway, who feared the warlike Sioux, called it "bwahn wig wahn" (enemy dwelling).

Before Coronado explored the Southwest there were no horses in this country and the plains Indians had permanent homes built with earth and sod. For a temporary lodge, while hunting, they used a small light tipi which, when bundled up, could be dragged as a travois by a dog—their only domestic animal. When horses became available, most of them—excepting the Pawnee, Mandan and Hidatsa tribes—abandoned the earthen lodges and roamed the prairies with much larger tipis as their year-round homes. Some of those were 20 feet tall.

The erection of a tipi began with a tripod of three poles or, in some tribes, a quadripod of four poles lashed together at the top. Then other poles were added so that all were equally spaced and two or more feet apart at the bottom. The entrance faced east so that the lodge would get only the morning sun. There being little or no timber on the plains, the Indians would go hundreds of miles to get good straight poles, especially young lodgepole pines, and these were transported from one camp to the next.

The cover was made from the hides of young cow bisons—preferably those killed in Spring when their skins were believed to be thinnest. Seventeen or more hides were cut to a pattern and sewn together with sinews by the women, supervised by a wise old squaw. The smoke flaps at the top, manipulated by poles to control the draft of the fire, were sewn on by a woman noted for her cheerful good nature — never a shrew. With a cover previously prepared, an experienced group of squaws could erect a tipi in a matter of minutes.

There was an inner liner or "dew" cloth, decorated with designs and pictographs, that provided an insulating air space and caught what rain fell through the smoke hole. The outside cover, usually replaced each Spring, was frequently decorated from top to bottom. As it dried it became translucent so that, in fair weather, the inside was illuminated; and early white travelers who came upon a village at night were impressed by the many luminous cones in the darkness of prairie river valleys.

The old Sioux tipi were cut so that they had a longer slope in front than in back. Those of the Crow Indians were high narrow cones. Others had a squat appearance. The cut of the smoke flaps, the length of poles extending above the apex, and the style of designs painted on the cover, varied from tribe to tribe.

The tipi, or tepee, is an ideal portable home, cool in Summer and warm in Winter. On a hot day the bottom of the cover can be raised to let a breeze blow thru the shaded interior. In Winter the heat from a small central fire is reflected from the slanting sides and keeps it warm. Truly, it is a Home of the Hunters. —*Nature Bulletin*, Forest Preserve District, Cook County, Illinois

Microclimates

Small weather zones, existing everywhere weather is made, are known as microclimates. For example, one neighborhood may get heavy rain; an adjacent one—none. One farm may have a hard freeze, while on another, nearby, the crops escape damage. One maple tree may be brightly colored by early Fall, while another of the same kind may be deep green although it's only a few feet away.

Climatologists at Cornell University are trying to find out what causes these differences and how great they are. Their goal is to interpret large-scale weather forecasts in terms of individual locations. For instance, when a cold front is moving in, the weather forecast may call for a low temperature of 5 below zero, but the mercury may drop as low as minus 20 in some nearby areas. The project's objective is to be able to tell which locations will have minus 20 degree readings and which will have much higher temperatures.

Another objective of the research is to predict variations in rainfall. A Summer shower may drench one field and leave a neighboring one dust-dry, and it would be helpful to know more about this, because a weather prediction which calls for scattered showers doesn't mean much if it can't be determined where the showers will actually scatter.

Weathermen in general have paid little attention to microclimates because their objective, forecasting for large regions, does not depend on an intimate knowledge of people's back yard temperatures or the rainfall over football stadiums. Professor Dethier says official temperature records are maintained only for areas which are representative of large regions. Weather bureau thermometers are kept a standard five feet from the ground and are carefully shielded from such influences as tar roads and small bodies of water. Consequently, scientists don't have a very clear picture of the extent to which roads, hills, rivers, buildings and vegetation affect climate.

This means soldiers going out on bivouac, for example, can only use weather forecasts in a very general way. A temperature prediction for a downtown metropolitan area may not hold true for a wooded campsite, although the two may be only a few miles apart, and similarly, a forecast issued from an airport, based on airport records, may not hold true for the concrete canyons of a big city nearby.

This method of studying climate involves direct observation rather than an investigation of the causes behind weather changes. Scientists, who seek the reasons for weather, contribute a deep understanding of the subject, but years are often required before the new findings can be used by day-to-day forecasters. Meanwhile, solid facts based on direct observation are needed. The research should yield information which can be put to work fairly soon after it has been obtained. Some day, forecasters may be able to predict weather for lawns, playgrounds, and city streets.

Dogs and deer—again

The season is again approaching when dog damage to the deer herd in many sections of the State can be serious. Some deer that are not actually caught and killed by roving dogs wind up just as dead. The picture shows Game Protector Bernard Murray with a doe deer driven off a cliff by dogs in the Southern Tier. A post mortem showed that she carried two fawns which is average for deer in that section. Other reports will come in of deer driven onto ice or into lakes and rivers to succumb.

The Fish and Game Law provides that any Game Protector, Forest Ranger or member of the State Police, anywhere in the State and any member of town police within the limits of the town of which he is an officer, may kill any dog pursuing or killing deer. No officer wants to take such action unless he has to and if dog owners would keep their animals under control during the critical late Winter season, the deer would fare better and law enforcement officers would not have to destroy dogs or witness the many incidents such as the one pictured.

George Green

A native of Berlin, Rensselaer County, George Green was a member of the first graduating class of the Berlin High School. He taught elementary school for a short time in the vicinity of the Capital District Game Management Area long before the area was purchased by the State.

In 1931, George began work with the Conservation Department in forestry and worked on blister rust and gypsy moth control work for a number of years. After that, he served as a foreman in several of the forestry Civilian Conservation Corps camps—Davenport in Delaware County, Bolton Landing in Warren County and at the Alps camp in Rensselaer County.

George was appointed Wildlife Refuge Caretaker for the Happy Valley Game Management Area in Oswego County in 1941 and did a most commendable job for the Division of Fish and Game until his retirement in 1957 at the age of 70.

He was an enthusiastic outdoors man to the last—only ten minutes before he passed away, on October 30th last, he asked Mrs. Green to remind him to pack his fishing tackle for their coming trip to Florida.

The many friends that George made among his Department colleagues and the public he served for 28 years will remember him for his quiet, courteous but always efficient way.

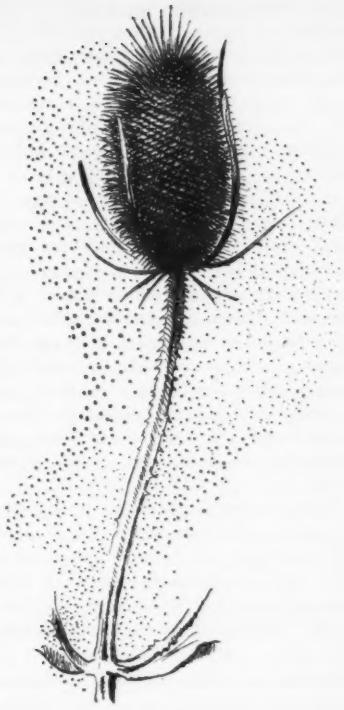
Not really idle

"It's an ill wind"—etc. With the steel strike on, members of the Lackawanna Rod and Gun Club of Erie County spent a considerable amount of time improving their hardwood stands.

Progress

An Air-Car has been developed to the point where assembly line production is being considered. It is said to travel on a cushion of low pressure, low velocity compressed air, over land, water, swamps, or any unobstructed terrain, 6 to 12 inches off the surface. Capable of speeds up to 60 miles per hour, this 8′x21′, 300 hp. vehicle may well add to the growing traffic problems on the lakes of the Nation.

In years to come, the old-fashioned, blissful boat fisherman may be abruptly treated to a bur haircut from above by a speeding Air-Car and a tub bath from below by a fast-surfacing sportsman's submarine. A water-skier towed behind the Air-Car might complete the treatment by pressing the prostrate angler's pants in a final pass.



Teasels

Mother Nature has once again completed a cycle of growth in the teasel family and the beautiful teasels are standing stately, erect and leafless. Some have reached the height of five or six feet.

When Spring came, these small biennial plants were nourished and watered. The plants grew upwards, reaching to the sun all Summer; the beautiful, light lavender flowers appeared in early Fall. Then came the seed heads, sharp and prickly, from one to four inches long, interesting in shape and size, each one full of small seeds ready to fall to the earth to begin another cycle of growth with the coming of Spring.

Years ago these seed heads were used to card wool, and in textile manufacturing, the heads were used to raise the nap on wool. In some parts of the country, they are gathered, dyed many different colors, sprinkled with glitter and sold for Winter bouquets. Today, shops in Florida sell the teasel seed heads, twelve for 50 cents. A shop in Oregon offers the teasel seed heads at $3.70 per 100.

To some, the teasel is just a weed that pops up all over and is hard to get rid of. If the ones who think this, will look a bit closer this Spring when the plants start growing, they will find a storehouse of energy. These plants are so constructed that the leaves hold moisture in small pockets against the stems. The stalks are strong, the roots grow deep.

With a little creative thinking, the seed heads could be made into beautiful decorations. Perhaps in the future teasels will be planted in the home garden.—MRS. ROBERT C. MACARTHUR

Forestry 4-H winner

Edward Young II of Fort Plain, a freshman at Paul Smith's College of Forestry at Paul Smith's, is one of 12 National Forestry Award winners declared at the 38th National 4-H Club Congress in Chicago, Ill.

To win one of the awards, Young competed with 70,000 boys and girls throughout the Nation and the honor brought an all-expense paid trip to the annual 4-H Club Congress. He was the guest of American Forest Products Industries, Inc., sponsor of the nationwide Tree Farm program.

Ed's 100-acre tree farm, the basis for his award, consists of 45 acres of natural woodland and 35 acres of softwoods, planted during the past three years. His interest in other conservation programs is shown by the 8½-acre small marsh for wildlife and soil and water conservation, he has established on the farm.

The farm has not only provided Ed. with an enviable award and recognition as a certified tree farmer but he and his parents and two brothers have averaged some $700 income annually from the sale of forest products. This is bound to increase as management and growth progresses.

One of the projects of the Montgomery County 4-H Conservation Club (Ed. was founder, and president before he left for college) is the development of this tree farm to the point where it can be used as a forestry demonstration area for those who want to put their own acres to better and more productive use.

It would be hard to find a better way of financing higher education for a family these days than to have a farm producing a marketable crop year after year.

National forests

More people went to the National forests for rest and play in 1959. Preliminary reports from Forest Service field offices indicate that recreation visits may hit the 75 million mark as compared to 68 million in 1958. Good fishing streams and wildlife populations lured an ever increasing number of fishermen and hunters.

National forest resources also contributed to the economic stability of local communities. The timber harvest of 8.3 billion board feet provided employment to loggers and mill operators as well as to manufacturers of finished wood products. Ranchers also used 61 million acres of the forests to graze some 1,067,500 cattle and horses and more than 2½ million sheep.

Seaway park

The new St. Lawrence State Park on Barnhart Island, in the center of the St. Lawrence power and seaway development, attracted some 700,000 registered visitors during 1959—almost twice as many as in 1958.

More than a million persons visited the Moses-Saunders power dam; the Eisenhower and Snell locks; and the new beach and pavilion, all of which are within the general park area. According to park officials, they expect a similar increase of visitors for 1960.

The Thousand Island State Park Commission, under whose jurisdiction the new park comes, has decided to raise the camping fee in the park system from $7 weekly or $1.25 per day to $8 weekly or $1.50 per day. This is for campsites with electricity, those without will be $7 weekly or $1.25 per day. Although camping facilities have been enlarged at most of these parks, they are still hard put to take care of the steady stream of camping enthusiasts.

Ghost pheasants

Ken. Welch of Fulton raises pheasant and usually they turn out to be brightly colored birds—as ring-necked pheasants should be. This past year, however, three of a brood of 104 birds refused to "color" and grew to maturity; their plumage a ghostly white.

Did you know?

That, because of its resonance, the wood of the red spruce tree is used in the manufacture of piano sounding boards, violin bellies, organ pipes, mandolins and guitars? That, not too many years ago, red spruce gum was the raw material for a chewing-gum industry in Maine? That the oleoresin from the resin blisters on balsam fir trees is used as a mounting medium in the preparation of microscopic slides and for cementing lenses in optical instruments?

"D.-J."

The horse outdated? Never! The Stream Improvement Unit of the Conservation Department has one and he is an able year-round worker, with no gripes about pay raises or the rising cost of living. A few bushels of oats, some hay and proper care provides returns to the Unit that are beyond measure.

In the Winter the horse, whose name is "D.-J.," skids logs from the forest cutting areas to the roadside. These logs are then transported by truck to the public fishing streams where they are used to build stream improvement structures.

The Summer finds "D.-J." working in the stream and along the banks hauling dead trees, logs and stone for boulder pools, deflectors, dams and cribbing. He also hauls materials to spots on the stream where a truck just can't go.

He is pastured at night with the consent of the landowner, right on the spot and ready for use the following day.

"D.-J." has become so familiar with his work that any inexperienced improvement crew member soon realizes he has a lot to learn from just watching the horse.

Does he get a pay raise of oats or hay once in awhile? "D.-J." has gained about 200 pounds since he started work for the Conservation Department which we will assume to be fair enough.

Honey

Man was a hunter of wild honey and a keeper of bees in prehistoric times. A rock painting on the wall of a cave near Valencia, Spain, made many thousands of years ago, shows a Stone Age man hanging by grass ropes and surrounded by angry bees as he takes a honeycomb out of a hole in a cliff and puts it in a basket. The lore of the honeybee and the uses of its stored honey have been favorite topics since the beginnings of written mythology and history. Certainly, honey has been the all-time favorite sweet of mankind.

The early Colonists brought the honeybee to America about 300 years ago. Before that time, there was no native honey except the spoonful or two in a nest of bumblebees. There was no other source of sweetening except maple sugar which the Indians learned to make by laboriously boiling down maple sap. Soon, swarms of these Old World honeybees escaped and established colonies in hollow trees. Over the years, they spread westward through the forests, usually keeping about 100 miles in advance of the frontier. The Indians called them "White people's flies." Woodlands near prairies with their wealth of flowers were especially productive. In the early days, bee trees were hunted as much as big game and were more valuable.

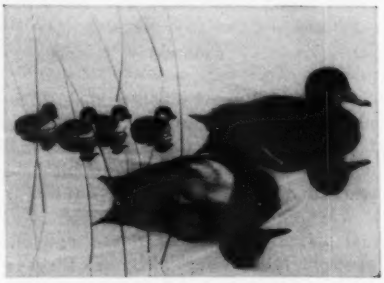
Honey is the sweet, sticky fluid which bees make from the nectar of flowers. Honey is not the same as nectar because the double sugar in nectar is changed chemically while it is in the bee's honey sac. Each molecule of that sucrose (cane sugar), is split into two molecules of simple sugar—one of dextrose and one of levulose. Then the bees put this freshly made honey into the cells of the comb where it is allowed to "ripen," and air is fanned over the open cells until about half of the water evaporates. Then each cell is sealed with a cap.

Honey contains about 77 per cent of sugar and only 18 per cent of water. Used as human food, the dextrose of honey is quickly absorbed by the blood and becomes an immediate source of muscular energy and heat. In contrast, before levulose can be used as fuel, it must first be converted into glycogen in the liver, then reconverted into dextrose. Honey, with its simple sugars, is often recommended by physicians and athletic trainers.

Nectar is gathered mainly in Summer from white clover, sweet clover and alsike clover, yielding a light-colored honey with a mild flavor. In Fall, nectar of the smartweeds produces an amber honey with a stronger flavor while that made from Spanish needles is golden with a slight spicy flavor. The famous buckwheat honey is dark purplish and strong. Hundreds of other kinds of flowering plants contribute to the honey yield but by far the bulk of our honey crop comes from cultivated plants, many of which could scarcely survive without the services of these bee pollinators.

Each American eats an average of about one pound of honey in a year. Most of it is extracted from the comb before it is sold. These combs, in small wooden frames, each with a double layer of cells, weighs about a pound. Traditionally, honey is spread on bread, biscuits, pancakes or waffles. Bread and bakery goods with honey in their recipes instead of cane or beet sugar, remain moist longer. In olden times honey was fermented to make the drink called mead.

Bees must make 40,000 to 80,000 trips to make a single pound of honey. Each trip averages one to one and one-half miles—a total distance more than twice around the world.—*Nature Bulletin*, Forest Preserve District, Cook County, Ill.



Duck stamp for 1960-61

The 1960-61 Federal duck stamp, twenty-seventh in the series, features a family group of redhead ducks. The theme portrayed is "Wildlife Needs Water: Preserve Potholes." And a good theme it is because almost all of the money derived from the sales of these stamps will be used for the acquisition and preservation of suitable waterfowl areas.

The stamp will be the second of the $3 series and will go on sale July 1, 1960. More than two million stamps are normally sold, although sales for 1959-60 were down considerably, due in part to increase in price, but even more to reduction of season and bag limits because of Spring droughts and poor reproduction. The Fish and Wildlife Service hopes, however, that waterfowl hunters and others interested in wildlife preservation will support the 1960-61 sales in order that badly needed money for wetlands acquisition may become available.

Maple plumbing

A scene reminiscent of Colonial times and pictured on many a postal card and calendar—the horse-drawn bobsled collecting maple sap in the deep snow of the sugar bush—is fast fading in this age of technology.

According to Cornell University specialists, the maple syrup industry in New York, second only to Vermont, is going more modern every year. The use of plastic tubing and pumps, multiple evaporators and more accurate testing equipment, is leading to quicker, easier sap collection and better control of syrup quality. This is giving operators more time to devote to developing greater markets.

Probably the most unique change is the use of plastic tubing to replace the time-honored bucket collecting method. With this complex system of "plumbing," the sap runs from individual trees to feeder lines thence to collection tanks at accessible places, or, it may even be pumped from here through larger lines direct to the evaporator. This system certainly has advantages in sugar bushes located on steep hillsides and when deep snow makes accessibility difficult or impossible.

New multiple evaporators, often fired by oil, are replacing the old wood-fired systems and the flow—from sap to high quality syrup—is almost continuous. Gasoline engine-powered tappers are replacing the old "brace and bit" much as the chainsaw has replaced the axe.

It's nice to remember the old way but, like plumbing in the home, who wants to go back to the wash basin and hand pump!

Archery P.-R.?

For years, gun hunters and fishermen have been making a special contribution toward perpetuating their sport by paying the Federal excise tax on arms and ammunition and fishing tackle of 11 per cent and 10 per cent, respectively. This money, returned to the states on a proportioned basis, has been responsible for some of our best game and fish management programs.

In less than a decade, field archery has become a top level participant sport for hunting, fishing and just shooting. Sales of equipment have mounted with the growth of the sport and vast quantities of archery equipment are sold over the counter each season.

Perhaps the archers should consider paying their fair share for keeping up with the ever-increasing demands for recreational opportunity afield.

Camping boom

Campers constitute a sales potential of staggering proportions according to the National Campers' and Hikers' Association. Their use of America's state parks alone jumped to 237,328,859—an increase of 20,000,000 over the previous year. A constantly growing group of this proportion, with specific needs and interests, represents an expanding market. Not only are these people interested in new camping equipment, but in allied hobbies such as fishing, boating, hunting, photography, archery and sports in general.

Camping is no longer strictly a Summer time recreation. It begins with the first robins and continues even after the snow flies. True, the majority vacation in July and August but there are many families visiting good campsites even in Winter. Some communities have found it profitable to establish camp grounds knowing that a camping area attracts families and these families spend money locally for food, clothing, medications, cosmetics, gas, oil and repairs—to mention only a few items. Private citizens with favorably located excess land have also discovered that campsites help pay the taxes and bring in extra revenue.

Pine sawflies

The European pine sawfly *(Neodiprion sertifer)* is a serious pest to red pine in southern New York. A ray of hope, however, comes from the use of virus and other microbial sprays, with good results reported on experimental areas.

Letters, letters, letters

The picture that accompanies this article is not spectacular nor does it have anything directly to do with conservation. It does represent considerable effort on the part of twenty-six school children, because each of the envelopes pictured contained a well written (for this, an orchid to the teacher) letter from a sixth grade student.

It also represents one of the problems with which we here in the Conservation Department are confronted almost daily. Each of these letters asked for the same thing, and they all came from students in the same class.

We have no objections to the idea behind letters of this kind and we want to be as helpful as we can. After all, our job is to help spread the word about the conservation of our natural resources and we are particularly anxious to be of help to students and teachers. Where the shoe pinches is that we are extremely limited as to material and staff to answer each letter individually. It would be most helpful if school teachers and others in similar positions would designate one student or individual to write in behalf of the class or group.

Early game management

The Kublai Khan ruled most of Asia from 1259 to 1294. He was quite a sportsman too, practicing protection and management by edict. Marco Polo wrote in his book, "The Great Khan," "There is an order which prohibits every person throughout all the countries subject to the Great Khan from daring to kill hares, roebucks, fallow deer, stags, or other animals of that kind, or any large birds, between the months of March and October.

"This is that they may increase and multiply: and as the breach of this order is attended by punishment, game of every description increases prodigiously . . . .

"Near to this city (Cathay) is a valley frequented by great numbers of partridges and quails for whose food the Khan causes millet and other grains suitable for such birds to be sown along the sides of it every season, and gives strict command that no person shall dare to reap the seed. Many keepers likewise are stationed there for the preservation of the game, that it may not be taken or destroyed, as well as for the purpose of throwing millet to the birds during the Winter."

Unusual "game"

In Michigan, a hunter seeking grouse, killed a hairy woodpecker as it drilled away on a tree while two other gunners bagged a spotted sandpiper and baby blue heron, thinking they were a prairie chicken and a teal. In Wyoming, a big game hunter shot one of the pack horses in his own party—thought it was an elk!

The quick-triggered, inexperienced and hare-brained gunner continues to be a liability to the hunting fraternity.

Seagulls and shellfish

The beak of a bird is about as useless for opening a clam or an oyster as a knife in the hands of an amateur do-it-yourself "on the half shell-er." The seagull, however, has developed a technique over the centuries that makes him an expert shellfish opener and a veritable single-engine bomber.

Once the seagull has discovered and retrieved his shell encased lunch, he transports it in his bomb beak to the proper altitude and then releases it over the target—a rock or other sufficiently hard surface. The result is a tender morsel of scrambled shellfish.

At times this can be quite disconcerting to man, especially in populated areas near the coast. The seagulls find the hard surface of a parking lot quite acceptable for their operation and the turret top of a new automobile looks just as good to them as a stone.

The golden sands

The hope for quick riches has sent many a prospector afield in New York in search of gold deposits. In fact, 3,000 or more claims were filed in New York in 1898; the year of the Yukon gold rush. Many thousands have been added since.

Substantial investments have been made in mills and processes for extracting the precious metal from supposed gold bearing sands—primarily in the Adirondacks. Some early "discoveries" claimed assays as high as $7.50 per ton; aided and abetted by a few enterprising prospectors who took the liberty of "salting" their discoveries with real gold to make investment more attractive.

The cold facts though: The highest verified assays of the precious metal in New York have seldom exceeded 10 cents per ton, or just a trace. This much could be found in many a granite paving or building block.

Dreamy bream

Lake Kariba, formed by the new dam in Southern Rhodesia, will be the largest man-made lake in the world. Conservation men are already stocking the waters with fish—mostly bream—from Northern Rhodesia.

To keep the fish from fighting and becoming too active during the long trip across the Rhodesias, a stream of high-pressure oxygen is injected into the fish tanks. This drugs them painlessly and keeps them quiet and undamaged during transport.

Netting whitetails

This new, yet ancient Asian and European principle of using tangle nets to capture game in the wild may, if successful, be most useful in certain deer management and research work. To date, the method has worked experimentally in deer corrals where the deer were confined in a large fenced enclosure and then driven into the tangle nets.

For the capture of wild deer, a simplified technique will be tried where 25-yard sections of tuna fish gill nets, seven feet wide and with mesh diameters of six to eight inches, will be hooked up on wires strung across the main deer trails in any suitable area. These nets would be watched by two or three men while others would drive the deer toward the nets.

When a running deer strikes the net, its head and feet go through the meshes and become entangled. The impetus of the running deer pulls the net off its wire hooks and it falls on the animal, thoroughly entangling it. Watchers nearby would keep the animal enmeshed and administer a tranquilizing drug by means of a hypo. Then the deer can be weighed, aged, tagged and released.

Such method of capture would be especially suited to trapping in deer yard areas where the animals are concentrated. Hunter kill data—turning in the deer ear-tag and the location of the kill—would reveal how far the deer traveled from the tagging area. Conversely, researchers would find out where the deer come from, how far they traveled to reach a particular yarding area. This data would give research another useful tool in working out deer management measures for problem counties or areas.

While netting techniques have long been used in Asia and Europe to capture hares, rabbits, birds and even large animals, it has not, to our knowledge, been used for the capture of any of the deer family in the U.S., although nets are used in some areas for corrals.

Air age pheasant

A cock pheasant was observed taking a keen interest in a particular red and cream aircraft based at a New Hampshire airport. Each time the 'plane's motors were started, the bird would charge out of the brush which surrounds the field and strut to a position beneath the left wing. As the 'plane taxied down the runway, he would do his best to maintain his position. As it came to a stop to rev up its engines before take-off, the bird would remain poised in a fever of excitement until it was safely airborne. When the 'plane received clearance and came in for a landing, the pheasant would be at the runway waiting to supervise its safe conduct back across the strip. Aeronautics people speculate that the particular pitch of that 'plane's propellers as they droned in warm-up and in flight acted as a signal to alert the bird to assume his self-imposed duties.

Lightheaded

The wattled starling is being studied by scientists to see if its loss of head feathers will provide a clue to the balding process in man.

Poison

The volume of all plant and insect poisons being used for control purposes in the United States has risen at least seven times above the 1940 level, according to the Wildlife Management Institute. Most chemicals in use today were not on the market before World War II, and more than 60 have been developed in the past few years. Over one billion pounds of chemical poisons are being used on farms each year.

Rainbow run

The picture, taken last Spring at Deckertown Creek, a tributary to famous Catherine Creek at Montour Falls, reminds us that it won't be long before the annual run of big rainbows that Nature schedules for the tributaries of the Finger Lakes in Central New York.

New Zealand deer

The New Zealand Minister of Forests recently stated: "Either the deer stay and we go, or we stay and the deer go." Then, striking a blow for the New Zealanders, he suggested that hunters better come and get the deer while the overabundance lasts.

Deer hunting in New Zealand ranks among the best in the world, with no closed season and no bag limits. The Minister, returning from an inspection trip of the great 300,000-acre pine forest near the east coast of the North Island stated that the deer harvest was not enough, the population must be drastically reduced.

This forest is the basis of New Zealand's growing export trade in newsprint and wood pulp. Regeneration of cut over areas is menaced by the big herds of deer and large areas of new growth have been completely destroyed. Experts say that the future of the whole forest is threatened by deer.

Soap pollution

We don't often think of soap as a pollutant, but it can be. Only recently Richmond, Va. was invaded by billowy stacks of white suds, up to 12 feet high, wafted along two small streams in the suburban area. The snowdrift-like masses, breaking up in the breeze, were wafted onto homes, lawns and shrubbery in the area.

The State Water Control Board, after laboratory examination of the 'stuff," classed it as another indication of municipal and industrial stream pollution, the result of such foreign products as detergents. Board officials admitted the airborne masses could be carriers of sewage bacteria. Not a pleasant thought.

Lost or bewildered

Every year a few outdoor recreation seekers manage to wander off their course and end up with the nerve tingling realization that they are lost.

Here are a few pointers—should you become lost—that can save your life and will certainly make it easier for those who may have to search for you:

1. Stop, sit down, and try to figure out where you are. Use your head, not your legs.
2. If caught by night, fog or a storm, stop at once and make camp in a sheltered spot. Gather plenty of dry fuel.
3. Don't wander about. Travel only downhill.
4. If injured, choose a clear spot on a mountain spur and make a signal smoke.
5. Don't yell, don't run, don't worry, and above all, don't quit. Better yet—write to the Forest Service, U. S. Department of Agriculture, Washington, D.C., and ask for their pamphlet No. 0-23 "What to do when Lost in the Woods," then study it. It could happen to you.

Foiling rabbits

A practical way to prevent rabbit damage to trees and shrubs during Winter is to use aluminum foil. It costs about 20 cents and takes less than five minutes to wrap a 3-inch diameter tree to a height of two feet.

With care, the material can be removed and stored for use the next year.

High yield poplar

A team of University of Wisconsin plant pathologists at Madison may one day provide better quality and higher yielding poplars to fulfill pulpwood needs.

They are developing hybrids between species and selecting disease-resistant trees within species of poplars. The ultimate aim of their research is to produce trees designed for a particular use to be grown in particular regions.

Ed. note: The pulp and paper industry has something at stake in this research program—and we understand that beaver have expressed some interest, too.

Come to order

We tabled one proposal; we considered
The report of one committee and
returned it.
We did accomplish one thing at the
meeting:
We adjourned it.—ANON.

'Possum eyes

Scientists at the Louisiana State University of Medicine are using the opossum as a research animal for studying the embryonic development of the eye. They say that the species is the only one known which can be given injections of drugs and other chemicals at stages of embryonic development equivalent to human growth in uterus. The opossum young can be removed at any stage of growth, from the pouch in which they develop.

Beech

There was a time, a long time, in fact, when the American beech, one of our most abundant Northeastern hardwoods, was relegated to the status of "weed tree" or "for firewood only."

Times have changed though, and with new wood treating and fabricating products appearing 'most every day, the beech is coming to the fore as a valuable commercial wood producer. The behavior problems of beech, from log to final product, including checking, splitting, shrinking and warping, have been pretty well licked by a variety of processing improvements. A large library of practical booklets are now available on all phases of working beech.

The Northeastern Beech Council of Old Forge, is bound and determined that manufacturers and users of beech products should receive all the help possible in utilizing this abundant new source of 1,000 and 1 wood products. If you're interested, why not drop them a line?

Letters to the Editor

Registration wrinkles

Dear Sir: With respect to the article on boats, and registration of motorboats, that appeared in the last issue of THE CONSERVATIONIST, I have a number of additional questions about registration, as follows: 1. If a rowboat, canoe, or sailboat is equipped with a clamping board for a small motor and is only occasionally used with such a motor, must this boat be registered? 2. If such a boat does not have a clamping board, need it be registered? 3. Are there any special provisions for registering a boat that is available for hire at a boat livery, or that is furnished with a rented cottage? 4. If a boat is sold, does the registration stay with the boat or does it stay with the previous owner for use on a new boat? 5. Will it be necessary to notify the Division of Motorboats if equipment such as a motor is changed on the boat? 6. When the boat is re-registered, after the three-year period, will the same number be retained, or will it be necessary to put numbers on the boat for each re-registration?

Robert G. Vyverberg, President,
Keuka Lake Shore Property Owners, Inc.

•1. Yes. Any boat that is mechanically-propelled must be registered under the new law. 2. No. If such a boat is not intended for use with a motor it need not be registered. However, if at any time, a motor is placed on the boat it must be registered. 3. Special instructions for dealer and livery boat owners are contained in an instruction sheet for dealer and livery registration. A copy of this leaflet is enclosed for your information. Boats furnished with rented cottages must be registered by the owner of the boats. 4. If a boat is sold the registration number stays with the boat. The old owner must return his certificate to the Division of Motorboats within 15 days of the sale. The new owner must submit a registration application within 15 days of the purchase. If he doesn't the number is cancelled out and the boat is operating illegally. Upon submission of his application within the 15-day period the new owner will be given the same registration number that appears on the boat. 5. The Division of Motorboats should be notified if the change involves a change from inboard to outboard or from outboard to inboard. However, the Division need not be notified of other changes in equipment on a boat. 6. The same number will be retained when the boat is re-registered according to schedule. However, if a registration is allowed to lapse, the number will be cancelled.—Milton J. Benoit, Chief, Public Information, Division of Motor Boats

Sidearms

Dear Sir: Upon reading the latest issue of THE NEW YORK STATE CONSERVATIONIST, your answer to a question submitted by a reader from Hanover, N. J. in regard to handgun hunting in New York State brought several questions to my mind that I have been unsuccessful in obtaining definite answers to.

I would appreciate it very much if you could give me definite answers to the following "handgun" questions: (1) Is deer hunting allowed with pistol or revolver in New York State? (2) If so, what areas? (3) What is the minimum allowable caliber? (4) What number of rounds are allowable? (5) What are the minimum and maximum barrel lengths allowed? (6) Is it allowable to carry a sidearm while bear hunting with bow and arrow in the general Adirondack Mountain area or on a private hunting camp in the Adirondack area? (7) What is the minimum allowable rifle caliber for deer and bear? (8) Is it allowable to carry a sidearm while hunting deer and bear in "shotgun only" counties?

H. A. Reid, Buffalo

• (1) Deer can be hunted with pistol or revolver in New York state. (2) The areas where they can be hunted are restricted to the counties where hunting with a rifle is legal. (See pages 4, 5, 6 and 7 of the Department's "Hunting, Trapping and Fishing Guide.") (3) There is no minimum allowable caliber but such guns must use centerfire cartridges; no rimfire cartridges. (4) The number of rounds allowable is six shells if the barrel is over 8" and no limit if the barrel is under 8". (5) There are no minimum or maximum barrel length restrictions. (6) You cannot carry a sidearm while hunting with a special archery license either for bear or deer. This is a State-wide law. (7) There is no minimum allowable rifle caliber for hunting deer and bear but it cannot be of rimfire type; it must be centerfired. (8) It is allowable to carry a sidearm while hunting deer and bear in "shotgun only" counties but you cannot use it, of course, to shoot either species.

The licensing for carrying pistols is handled under Section 1897 of the Penal Law. For further details on this you can secure a mimeographed copy of Section 1897 by writing to the New York State Police, Pistol Permit Bureau, 8 Nolan Road, Albany 5, N. Y.—Earl A. Westervelt

Colvin's peaks

Dear Sir: Our great delight in Verplanck Colvin's incredible adventures is the spur which, over the years, has prodded us to the top of many an Adirondack peak.

On some, the marks of his Adirondack Survey are still evident in the form of lead-filled drill holes where rested the three-hundred pound theodolite; copper survey bolts, green with corrosion and battered almost beyond recognition; weather-worn initials carved deeply into the rock.

Hurricane Mountain at Keene, is one of the many important stations occupied during the survey. (See picture on page 115 of Colvin's 1874-79 Report of Topographical Survey.)

If Verplanck Colvin still wanders in spirit through his beloved Adirondacks—and we're sure he does—he was probably standing near when we snapped the accompanying photograph of this scene 85 years later.

Although he might lift an eyebrow at the silver arrows painted across the rocky summit to guide the would-be adventurer, we're sure he'd share our views as to the durability of Adirondack granite.

Bertha and Orville Slade, Gloversville

Dream come true

Gentlemen: Enclosing a picture of a dream come true. Both turkeys weighed exactly 17 lbs. each and were running together. Shot at Wolf Run on the edge of the Allegany State Park and the Allegany River.

William F. Roberts, Sinclairville

•*Our game biologists, who have worked very hard on these "dreams," hope that many more will come true in the years ahead.—Editor*

Experienced observation

Gentlemen: Perhaps you would be interested in the experiences of our hunting club in respect to the doe seasons. Our club, eight members, has a tent camp one and one-half miles in from Route 28 near Indian Lake Village. We hunt from there to about three miles in (map miles not guess). Two years ago, on the doe day, five of us shot two does. Last year, due to the deep snow, it was almost impossible to hunt but we were lucky enough to get a spike horn and a doe.

This year all eight of us hunted three days. We shot three deer that would not have been shot at during regular season. One was a spike horn, one a button buck and the other a large doe. We also killed a five-point buck. These were the only deer we killed this season, although we saw lots of deer. One day we saw twenty deer without seeing a horn.

We have now hunted a total of six days when it was legal to shoot anything. We have not seen another hunter and have heard very few shots. We feel that the doe seasons have not hurt the deer in our area but has given us a chance to have some hunting we would not otherwise have enjoyed.

We have now hunted in the same area for twenty years. One year we shot five bucks and one year only one. We usually miss a few, too. We think there are just as many, if not more, deer now than years ago. But we have noticed that they are smaller and the horns seem very light. We have also seen tracks of dogs for the last several years but have seen only one.

We would like to say that we feel the Conservation Department is doing a fine job and we appreciate the problems you have, both two and four-footed.

C. M. Crannell, The 34th Flow Club, Glens Falls

•*And we sincerely appreciate your comments.—Editor*

Grape leaves

Dear Sir: In the October-November, 1959, issue of your wonderful magazine, I read most of the articles. I also read the short article, "Wild Grapes," by Richard Headstrom on page 43.

I enjoyed this article very much. However, I would like to add another use for wild grapes; more explicitly, the leaves of wild grapes. We use the leaves of wild grapes as a wrapping for a similar application as stuffed cabbage leaves are used for. Although grape vine leaves from the home garden or any vineyard can be used, I have still to taste one that approaches the tastiness of the leaves from wild grapes that one finds so plentiful in our woods. For a real taste thrill try stuffed wild grape leaves. The next time you make stuffed cabbage you can sneak in a few stuffed grape vine leaves.

Peter Bedoian, Plainview, L. I.

Deer antlers

Dear Sir: After reading your October-November issue of THE CONSERVATIONIST I would like to submit my idea on finding deer antlers.

Enclosed is a picture of antlers that I picked up in the Spring of 1958 in a deer yard. My opinion is that porcupines are the biggest consumers of antlers, so if you find an area where they don't exist your chances are very good of finding antlers. The antlers in the top of the picture were newly dropped but most of the others were two years old. They take on a green color from the water on the ground as you can see by the dark base ends.

From the location of the antlers in pairs it is my guess they use their hind legs to knock a loose antler off. The rest are knocked off while feeding.

Is it correct that the average buck doesn't have a big rack until after he has reached at least three years of age?

Harry L. Darrow, Scotia

•*Both age and nutrition play a part. Many a two and a half-year-old Southern Tier buck, for instance, where winters are comparatively open and browse in good supply, will produce a rack that puts older Adirondack bucks to shame.—Editor*

"Composite puffball"

Gentlemen: In a recent issue of THE CONSERVATIONIST I saw a picture of a puffball which was supposedly very large but I do not believe that it could compare with the composite puffball shown in the inclosed photograph.

This one was found in Henrietta (New York) early this Fall and completely covered the top of a bushel basket.

Carolyn L. Remington, Rochester

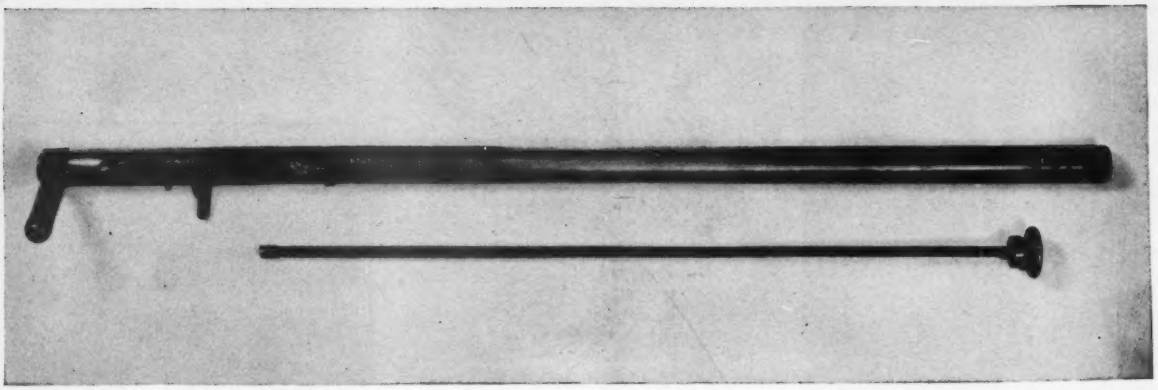
Turkey band

Gentlemen: I am herewith enclosing a leg containing your band No. 1843 which I severed from a wild turkey I came across while duck hunting with a party of friends at Canaan, Columbia County off Route 22 in a swampy area.

We heard a lot of firing in this area and I assume that this was shot by a hunter who didn't realize what he had hit. The bird was found late in the afternoon, on Monday, October 26th. I eviscerated the turkey and found nothing in its crop.

Charles J. Alexander, Jr., New York City

• *Thanks for sending the leg and band of the turkey which you found shot near Canaan on October 26. This turkey was from a small group of nine birds liberated on the West Hill Road, Austerlitz township, Columbia County in late April of 1959. It is most unfortunate that this hen was lost to a careless hunter, thereby reducing the chances that turkeys will become established here as a result of this turkey stocking.—Charles Mason, Conservation Biologist*



Cane gun

Dear Sir: The old gun, a photograph of which you sent to us for identification and comment, is of a cane gun.

Weapons of this type were made from the flintlock period up until quite recently. They were used by game poachers, taxidermists and individuals who wished to combine a walking stick and gun for protection.

These cane guns were made by European firms and, surprisingly enough, were also made in this country by E. Remington & Sons of Illion, N.Y. The Remington rifle cane was chambered for the .22 and .32 rimfire cartridges. Cane guns were used also by snake handlers who combined a hooked staff with a shotgun barrel.

Illustrations of many different types of cane guns will be found in the book entitled "Firearms Curiosa," by Lewis Winant. This book was published in 1955 by Greenberg, New York, N.Y.—M. D. Waite, NRA.

Labs., clumbers and poodles

Dear Sir: Congratulations on the "Popular Sporting Dogs" article and the art work in the current (Oct.-Nov., 1959) issue. The very nature of the work of the various breeds makes them conservationists of the first order.

The author mentions two colors for Labradors: "Solid black or creamy blond." This is only correct as far as it goes, which is batting better than *The Enclyclopedia Britannica*, which only mentions the black.

The yellow or golden Labrador varies in tone from cream to yellow to a fox red. They are seen as often as the blacks in England, and are gaining in popularity here. Indeed, my own records (I'm a Labrador breeder, as a hobby) show that over the past five years I've had three times as many calls for yellow pups as for blacks. Still, many people haven't heard of the yellows.

There is also a third color—the liver or chocolate, quite like the coloration of a dark Chesapeake. I know of about six in the East, and there are perhaps only fifty in this country. Livers come from certain lines of blacks, or a black with a liver factor bred to a liver, but nobody yet has produced a full liver litter.

The Standard accepts "any solid color," but there's no chance of blues or greens appearing. Incidentally, the first Labs, came to England on fishing boats, and early writings reveal that they were used to retrieve fish. I can testify that several of my own Labs. have helped me out in this manner when I was surf casting. I have since discouraged the practice for fear that the dog might grab the lure as well as the fish.

I'm sorry Mr. Bromley didn't include the Clumber spaniel in his fine article. There are probably less than a hundred in this country these days, but way back "when" the early spaniel field trials were held in this country, the Clumbers consistently walked off with most of the honors. Unfortunately, a breed club was never founded, and when trials were separated by breed, the Clumbers died out in popularity. Many a true sporting dog man today has never seen one. I don't know of a single one in New York State or New England, and I would be surprised if there are more than a hundred in all North America. Why don't you and I revive the breed?

I think, too, that the standard poodle should rate a mention. A few of them are still being used as retrievers (mostly in Maryland) and doing a grand job. They look a lot better in the field than they do pulling lost souls down Park Avenue.

Kurt Unkelbach, Stony Brook

• *Thanks for your letter adding to our information on variations of the Labrador. I was particularly interested in your reference to the liver or chocolate colored Labradors, a shade that I have never happened to see.*

We knew that we were treading on thin ice in attempting to select the most popular gunning dogs of the many breeds that are represented in this country. You will note, in this connection, that we left ourselves an escape clause by stating in the introduction that "not all of the working dog breeds are shown by any means but enough to indicate there is a wide choice available to any hunter, no matter what his waterfowl or upland specialty may be."—Editor

Color blindness

Dear Sir: That hunters—many of them presumably wearing red—are often taken to be deer and consequently shot at, may be due in large part to color blindness, which is fairly prevalent among men. The well-known Japanese work on "Tests for Color Blindness," by Dr. Shinobu Ishihara, states that "red-green blindness is the most common form of congenital color blindness, about 5 per cent of males having this abnormality."

Those, who are totally red-blind, cannot distinguish red caps and shirts from the surrounding green. Since many hunters are inclined to shoot at anything that moves, shouldn't applicants for hunting licenses be tested for their response to color?

Rockwell Kent, Ausable Forks

• *We think there is more involved in the "accidental" shooting of another hunter than color blindness, but to the degree that it might lessen hunting casualties we are in favor of your suggestion.—Editor*

Something for nothing

Dear Sir: Will you please send me information on the Pittman-Robertson Act? Is this the program whereby you can lease a tract of timberland for a period of 5 to 10 or 15 years and if you do no cutting of timber you will be paid so much per acre for doing so?

George E. Maine, Marcy

• *As far as I know there is no program in the State where a man is paid for not cutting timber.*

As for the Pittman-Robertson Act, it is a Federal Act whereby an 11 per cent tax on such sporting goods as guns and ammunition is pro-rated back to state conservation departments for their use in various wildlife programs such as acquisition, development and research. Much of the Department's pond building, shrub distribution, wetlands acquisition and wildlife research is financed by this means.

I might add that for every 75¢ received under this Act, the state must appropriate 25¢ toward approved projects.—A. S. Taormina, District Game Manager

The back tag

Dear Sirs: One subject, which should interest most everyone, might be "The Traveling Billboard." I'm referring to the hunter when he takes to the field.

In order to shoot various other animals while hunting deer or bear—and these opportunities, such as fox, bobcat and coyote do arise as all hunters know—one must have on his back both the small and big game tags.

It should be evident to those who sponsored and passed this law, (providing they ever hunt), that it is necessary to vary the amount of clothing as the pace of the hunter dictates. If the weather is cold, one wears an extra jacket, coat or shirt when starting off. If the weather moderates, it is removed. Again, if it becomes colder or the hunter decides to sit for awhile, the garment is replaced. If the hunter is alone, and this is often the case at the time the change is desired, it entails the changing of two garments in order to remove and affix the tags, simply because the law requires the tags to be displayed on the center of one's back, the most inaccessible spot on one's body, the only place which one cannot see without a mirror. How can one be sure he has not lost one of these tags?

If this tag idea continues, surely there is a market for some contraption like a miniature venetian blind to drape on a hunter's back with aperatures in it for inserting tags. If made of a suitable material, it might also serve as a blind for the duck hunter.

I, and certainly many other readers of THE CONSERVATIONIST would be interested in the following: 1. What useful purpose do these tags serve? 2. Why must they be affixed to one's back? 3. Why wouldn't a badge, of some non-light reflecting material for use on one's hat, serve the same purpose, if there is a purpose? 4. If a hunter loses his tag while hunting and is approached by a law enforcement officer, is it a violation and if so what is the penalty?

Ernest Deso, Troy

• *The legislation requiring a person hunting, pursuant to a hunting, combination or big game license, to wear a back tag was introduced upon recommendation of the Joint Legislative Committee on the Revision of the Conservation Law, following public hearings throughout the State. This legislation was strongly supported by the Grange, Farm Bureau and other farm organizations. It was also supported by the New York State Conservation Council. The purpose of the requirement is to readily identify hunters afield—and wearing the tag on the back best serves that purpose.*

Landowners in the past had experienced increasing problems with a minority of hunters committing acts of vandalism on their property. They feel that the potential of positive identification serves as a deterrent to such acts.

Experience with the big game tag has been helpful to law enforcement and in improving sportsman-landowner relations. We have considered the button but feel it would have to be too large to accomodate numbers of a size for good identification afield.

Your first obligation upon loss of a tag is to acquire a duplicate tag at the nearest District Conseravtion Office. The price is $.25. As an alternative you can mail your quarter to the Conservation Department, Albany, to the attention of Bureau of Licenses. I am sure that if you keep your part of the obligation, you will find the Game Protector a pretty reasonable fellow.—William J. Goodman, Chief Bureau of Law Enforcement

Black snowshoe

Dear Editor: Enclosed is a snapshot of a black snowshoe and one of normal color shot on Halcott Mountain, Greene County, in the Catskills, of course. You must come to the Catskills for the unusual.

Sure hated to part with it, but figured it would serve a better purpose going to the Department and it will serve as an incentive for me to get another. What a damn fool optimist I am; I waited 56 years for this one.

Art Flick, Westkill

Mine at Rock Pond

Dear Editor: In your October-November CONSERVATIONIST I read a very interesting piece about Rock Pond, in your Letters section, by Clifford Walker of Schenectady. I well remember all about how the mining at Rock Island started and the difficulties they had in getting the boiler mentioned into the mines. It was drawn in by eight teams of horses on a special wagon with 12-inch tires, loaded at Ticonderoga from the cars and it was three weeks before they reached the mines. A Mr. Latteral had the contract. I think the weight was around 10 tons. It sank into the roadbed at a place near the Old Philips place, now owned by Vernon Armstrong. The boiler wasn't fired by oil but by wood cut on the property. (The cutting and hauling of this wood is a story by itself as they used over 500 cords a year).

The tunnel mentioned was started to go into the bottom of the open pit to drain the brook running through the mine. The tunnel was drilled by a steam drill on tripods built by Remington Rand Co. Yes, dynamite was used. Mr. Pat Flanigan, a real old-time miner was pit boss and loaded all the drilled holes. His son, Pat, now living at Schroon Lake, was oiler in the mill. He was then about 16 years old and I think the only one now living besides myself who worked there. Although Jim Ryan of South Ticonderoga and John Towne of Ticonderoga may be living also.

The Flanigans lived at Potts Pond then and walked over a trail to Rock Pond daily. The copperas that the tailings contained and ran into Rock Pond blinded all the fish therein. I shantied at the point near where Lily Pad Pond, now known as Little Rock Pond, entered Rock Pond, and thanks to this small pond, the fish came back in time after the copperas was diluted. Both are stocked with trout now.

John A. Moore, Raquette Lake

Happy Valley turkey

Dear Editor: Early this Fall, I went into the Happy Valley Game Area to do some exploring for hunting later. When I was returning to my car, I heard a rustling in the bushes at the side of the road and out stepped a big wild turkey. He was dark bronze; a beautiful bird.

We looked each other over for perhaps ten seconds, then he took off and was soon over the tree tops with ease. Oh, for a movie camera at that moment!

I understand that you have released some wild turkeys in that area and thought you might like to know about them being seen.

When do you think there might be an open season on them, if ever?

I would say this one would weigh somewhere near 10 pounds.

For a large bird he was very graceful in flight and would have made a nice picture against the evergreen trees he flew over.

George V. Curtis, Clay

• *Thank you for your recent letter in which you mentioned that you had seen a wild turkey on the Happy Valley Game Management Area, in Oswego County.*

Nine wild turkeys (six hens and three toms) were liberated on the Happy Valley Area this past Spring by personnel of our North Central Game Management District, and it appears that you were fortunate enough to see one of these birds.

Our experimental releases have included releases of small numbers of turkeys in Oswego, Fulton and Washington counties in an effort to learn if they can survive the Winters this far north in the State. Our most successful liberations have been considerably farther south.

A three-day open season (October 5, 6 and 7) was held last Fall in Allegany and Cattaraugus counties and we hope that the turkey populations in other parts of the State eventually will be large enough so that open seasons would be justified.—Charles P. Brown, Conservation Biologist

Exhibit

Dear Sir: We are most appreciative of the loan of the fine pictures and the copies of THE CONSERVATIONIST.

To express our thanks, we had pictures prepared showing the exhibition. It represents what a large community museum, such as ours, can do in creating interest in the work of the Department of Conservation.

W. Stephen Thomas, Director,
Rochester Museum of Arts and Sciences

• *We are most grateful for your interest in our work and in the magazine and trust we shall be mutual benefactors of the exhibited material.—Editor*

Eagle Lake

Dear Sir: In reference to Mr. Walter Hochschild's inquiry on page 46 of the October-November issue of THE CONSERVATIONIST about the location of Eagle Pond, both the date and the origin of the name tell a story that might be of more general interest.

In the Summer of 1848 (probably) the co-owners of Township 40, which embraces all the Raquette Lake and surrounding lands, made a reconnaisance of their holdings. One of these men was Farrand N. Benedict, who was probably the first man to explore the central Adirondacks, beginning in 1835, and who was a professor from the University of Vermont. The other was David Read who, like Benedict, owned at one time a great deal of land in the region.

In a letter describing their adventures, Read wrote:

"Eagle Lake, which is an object of interest and curiosity, lies about three miles due south from the mouth of West Inlet (on Raquette Lake), and two miles east of Eighth Lake. It is of small dimensions, not varying essentially from eighty chains in length and forty in breadth. This lake was discovered under circumstances somewhat amusing; and in a manner that presented its features in bold and impressive aspect." Starting from the east shore of Eighth Lake, in quest of another pond discovered by Ebenezer Emmons of the Geological Survey, about eight years earlier, Benedict and Read bushwacked through the trailess forest for four or five hours, without success. Sitting down on a log to rest, they were surprised by a large black bear, who soon left.

"But this adventure was followed by another, if not so dangerous, yet somewhat more amusing—which gave the name to the lake in question. Our travelers having been relieved from their unwelcome visitor, concluded, before they proceeded on with their journey, to take an observation from the high grounds where they were, with a view to examine the country to the south and east, and discover, if possible, the position of the lake which was the object of their search. To accomplish this purpose, the knight of the pistol volunteered his services to climb a tall spruce that stood nearby; and accordingly flung aside his pack, pulled off his boots, and depositing them at the foot of the tree, commenced the ascent. After climbing some fifty or sixty feet, his ears were suddenly pierced by the screams of a huge eagle, and his face at the same time brushed by her wings, and torn by her claws. As the enraged bird passed round her airy circuit, repeating her sharp and threatening notes, the eye of the adventurer fell upon a deep, black lake below him, and he for the first time discovered that the tree he had ascended stood upon the brink of a precipice of fearful height, overhanging the dark abyss where the jealous bird of liberty had planted her nest, and secured her young. By this time the gathering foe had again made her circle, and coming like an arrow through the air, pounced upon his head, and striking her talons through his cap and wig, tore them from his naked scalp, and hurled them to the ground.

"Not exactly a back out, but a back down was the immediate result—and the vanquished knight, as he landed on terra firma, audibly thanked his stars, and remarked to his companion that his satisfaction was unbounded, seeing that the matter had ended no worse—and as they proceeded to gather up the 'duds' they entered upon a discourse, wherein the rules of chivalry were gravely considered, and a decision soberly made, that there was no loss of honor in the affair, since such cases were of rare occurrence and did not happen under those circumstances by which a man's courage and valor were ordinarily tested.

"On examining the lake, it was found that it was nearly surrounded by rocks, for the most part of perpendicular ascent, rising like a wall of masonry with its face to the lake, and from two to three hundred feet above the surface of the water. It was of oval form, and gave the appearance of an immense reservoir prepared by art—a section of its western wall, however, overhung the water, forming a high arched cavern beneath. No streams were discoved falling into the lake, but an outlet, running constantly from it, was noticed at the extreme south end, where the heights became depressed and fell to a level with the surface of this secluded yet interesting object of nature. A day spent in visiting this little lake will well repay the toil and labor it will cost."

When Joel T. Headley began to put together the second edition of his famous book, "The Adirondacks," he included a long letter from Read, of which the above is a part, as chapter 24. Perhaps Read did this kindness to the noted author because Headley was Benedict's first cousin. Anyhow, that is how one of the Eagle Lakes got its name.

Warden H. Cadbury, Cambridge, Mass.

Foreigners!

Dear Sir: I've read some of your magazines, THE NEW YORK STATE CONSERVATIONIST, and although I've enjoyed some of your articles, I was terribly disappointed at reading all the foreign publicity given in that magazine.

In the October-November issue I would have much rather read spaniel, cocker spaniels, setters, water spaniels, short-haired pointers rather than to have read the foreign countries attached to these animals.

I feel that your magazine could go a lot further to the hearts and minds of intelligent people by taking a neutral attitude toward foreign adaptations to this country and give the American the expected treatment in print.

Walter Pytlowany, Westbury, L. I.

• *We're quite sure that the English setters, the Irish water spaniels and the German short-haired pointers—to mention only a few of the popular sporting dogs featured in our October-November* CONSERVATIONIST, *had as little control over their origin or names as you, Pytlowany, or I, Bromley.*

And when it comes to "pure-quill" Americans, there's darned few unadulterated Indians left. As for the rest of us "new generation" Americans, our pride is not lessened because of foreign ancestry. It may be of some value to point out that we didn't get to be Americans by spontaneous generation. —Editor

Winterkill

Doctor U. B. Stone: I read your interesting article on "Winterkill." What steps can be taken to prevent winterkill of the fish in our garden pool? The pool is bean-shaped, measures about 11 ft. long and 8 ft. wide. The grading is like a saucer. From the top of the soil in the center (which includes topsoil, sand, etc.) to the surface of the water is about 8 inches, tapering off to the edges of the pool. We have about three dozen fish, frogs, etc., with lilies and various oxygenating plants.

Some winters we have lost all the fish and frogs and some about half.

What do you suggest?

Arthur F. Kelley, Douglaston

• *If a portion of the pool had a water-depth of four to five feet you would probably experience no trouble. Ponds in this latitude are normally constructed to provide sufficient depth to afford insurance against freeze-out. Fish, unfortunately, are not so resistant to the deep-freeze treatment as lilies; a circumstance that a good many pond owners have discovered—too late. I would assume, in your case, that it may now be impractical to deepen a portion of your pool to meet these specifications. Under such circumstances, I believe that the only practical solution would be to cover the pool so that the water does not freeze. It would seem that a layer of boards, some insulation and a final cover of heavy canvas should give adequate protection.—Udell B. Stone, District Fisheries Manager, Western Fisheries District*

Unscheduled passenger

Gentlemen: Inclosed are two pictures that I took of a car-deer accident this year. The deer was a buck with seven-inch antlers. It went completely through the windshield into the driver's lap and ended up in the position that you see. The accident occurred at 7:30 a.m. and the driver was traveling at 50 miles an hour at the time. The deer weighed about 130 poounds.

The driver was not injured seriously and escaped with only facial cuts and bruises.

Tom Millbower, Syracuse

• Dramatic and miraculous! We marvel that the deer was the only fatality.—Editor

Gar pike

Dear Sir: Being an avid fisherman of Black Lake, along with my wife, and son, I am writing you to see if something cannot be done to decrease the population of the gar pike and the ling (or dogfish) in this lake. I have been told by several guides that in the Spring of the year they congregate in what is called Lonesome Bay and at that time of year they could be netted with comparitive ease. The gar are almost impossible to catch on a hook, but do a very nice job of destroying the bait and line. If some of these pests could be eliminated, I feel sure the population of the dwindling supply of perch and walleyes would be taken care of, since I understand they eat their own weight every day. We have also found evidence of the lamprey eel on many fish and on one great northern, we found one attached to its side.

Anything that can be done will be greatly appreciated, not only by me but also by the many fishermen I have talked with who like myself, think Black Lake is a mighty fine spot.

John W. Taylor, Williamsville

P.S. Thanks for the write-up in the August-September issue on the ginkgo tree in my home town. Nice of you folks.

• Black Lake has always been one of the top-ranking lakes in the State for fishing. It is a large, productive lake with a great variety of warm-water fish species. The gar pike and dogfish have always been a part of the fish population there and apparently have fitted into the complex fish association very well. In fact, their predatory nature has probably played an important role in maintaining a proper population balance between the game fish and non-game fish. There are several species present such as sunfish, perch, rock bass and bullheads which, if not kept in check, would overpopulate. The result would be poorer fishing for these species (which are popular with a great many fishermen), since they would stunt and not reach a desirable size. Excessive numbers of these fish would also interfere with survival and growth of young game fish.

During the past 30 years the Conservation Department has made several studies at Black Lake. The findings have not shown any great deterioration in the fishery and conditions are still satisfactory for continued production of good fishing.

We have handled a great many fish taken in nets during these studies but never observed any of the lampreys which you report. However, we have had other reports of lampreys on fish from Black Lake and have found, on investigations, that they were leeches. If you find any more lampreys we would appreciate it if you could provide us with a specimen.—Donald G. Pasko, District Fisheries Manager

Dear Sir: It gives me much pleasure to have received from you the letter you sent on October 23 in regards to my inquiry on the great amount of gar pike and bowfin in Black Lake. To see that letters sent from amateurs such as myself are considered and answered, makes me feel very proud to know that the Department is interested enough to answer such queries and may I be able to be such a good sport as you are.

From this time on when someone tells me that the men in charge pay no attention to letters sent in by "us guys," I assure you I will not agree with them and shall bring to their attention the fact that they are not in line with my way of thinking.

In regard to the lamprey eel on the fish, I do not know for sure if I would know the difference between a leech and a lamprey, in fact, I didn't know that leechs attached themselves to fish.

We have always had good luck at Black Lake and it was only as a matter of inquiry that I wrote to THE CONSERVATIONIST about these things and I assure you not a letter that might mean criticism. You people sure know much more about fish balance than I.

John W. Taylor, Williamsville

Tasty

Dear Sir: This fall I shot two pheasants and found the crop of each filled with seeds of a type I cannot identify. Could you help me? I am enclosing several of them. Would you also give me the name of a good reference book which describes the small trees and shrubs of the New York State area? Thank you very much for any information you may be able to give me.

E. C. Craig, Stone Ridge

• The fruits from the pheasant crop are those of the skunk cabbage (Symlocarpus foetidus) *which is related to the calla lily and to Jack-in-the-Pulpit in that they all belong to the Aruna family of plants. This is a fairly common Fall food of pheasants, and is usually recognizable as soon as the odor is released by breaking open one of the fruits.*

I believe you already have received a leaflet listing books on trees and shrubs. I suggest you look them over at a bookstore to satisfy yourself before buying. Arthur H. Graves' "Illustrated Guide to Trees and Shrubs" is a good one with which to start. Grimm's two books on "The Trees and Shrubs of Pennsylvania" are also good because of the large illustrations.—Ralph H. Smith, Conservation Biologist

Ring-Necks

Gentlemen: In *re* ring-necked ducks breeding in the Adirondacks: Back in 1924, I saw my first ring-necked ducks nesting. One pair nested by an abandoned beaver dam on Purgatory Creek which runs into the Moose River. When I saw them first, two old birds were chasing one another, playing on the small patch of water in the center of the old beaver pond. Two months later I saw the hen with nine young there.

About 1929 (I am not sure of this date) I saw a hen with five young on a small unnamed pond about a mile from High Falls on the Oswegatchie River.

Incidentally, I think these ducks should be called "ring-billed" rather than "ring-necked" since the bill ring is always conspicuous while the neck ring is almost invisible except in breeding plumage.

Stan B. Wade, New Port Richey, Florida

Credits

First cover, pages 24, 25, 28, 29, 35, H. Wayne Trimm; second cover, Larry Pringle; 2, 3, David L. Hanselman; 5, Arthur W. Silliman; 7, Leonard Lee Rue III; 8, 19, 20, 40, Nick Drahos; 9, 39, Earl McGuirk; 10, 11, 18, D. G. Allen; 13, 14, 15, 16, N. Y. S. Museum; 17, Drahos, Div. of Parks; 22, G. E. Cummings; 27, Pitt Smith; 30, A. F. Tait; 31, R. G. Zilliox; 33, Ben Bradley; 34, Jos Dell; 36, Corning Leader; 37, Trimm, P. R. Furlow; 38, Maurice Otis, John A. Ruthven; 41, E. A. Westervelt, Trimm; 3d cover, Pliny Jewell; 4th cover, Hy S. Watson.

The Unforgettable Picture

When He Rang a Bell, the Frogs Left the Pond to Line Up for a Meal of Mouse

WHEN I was a small boy, a great many people, whom I found especially fascinating, annually spent the Winter in St. Augustine, Florida.

There was, for example, the elderly gentleman who used to stop at our hotel table every morning at breakfast. With twinkling eyes, he would bow deeply before me in mock obeisance. Then with a great flourish, he would remove the top of a silver canister, hold it out to me and say with great solemnity, "*Pro bono publico.*" Then I would take from the canister a piece of fresh ginger bread prepared for him by the pastry chef.

Then there was the gentleman who carried an inch-long pistol as a watch fob. He would load this with a blank cartridge the size of a rice grain and let me shoot it off. There was another who could draw wonderful pictures of horses. I do not doubt now that, without protest, he drew 500 for me. Also, there was the hat check man at the dining room entrance. It was a huge dining room and often there must have been 300 hats, mostly boaters and Panamas which looked alike. But he never gave out a check. He unfailingly could remember the proper head for each hat.

And then there was the man who could charm frogs.

Now this gentleman had a keen sense of humor and his frog-charming deal occurred on his own say-so back north in New England. So the story seemed marinated in a good thick broth of boloney even to a gullible small boy. That is until this gentleman returned the following Winter with the evidence in the form of this photograph which we subsequently corroborated and which is reproduced here nearly a half century later.

My Mother filed the photograph away between layers of old fans, clippings from the genealogical section of *The Boston Transcript* and other extremely useful material. So for years the picture remained lost—but unforgotten. And last Christmas she found it again. On the back she wrote for me:

"Pliny Jewell of Hartford, Conn. I think he was some one important. This is a photograph of him calling up the frogs from the pond on his estate. I believe he rang a bell. He has a mouse on the line."

A close-up of the characters shown opposite reveals that some, at least, didn't cross the pond for nothing. Consider, for example, the satisfied customer fourth from left, middle row.

That's all I know about this fascinating picture and thus far I haven't been able to find anyone who can add to the details.

How long did it take to make the frogs responsive and how was it accomplished? *Did* he use a mouse? How did the whole thing start? Does anyone else know of frogs similarly trained? Are there *no* frog lovers?

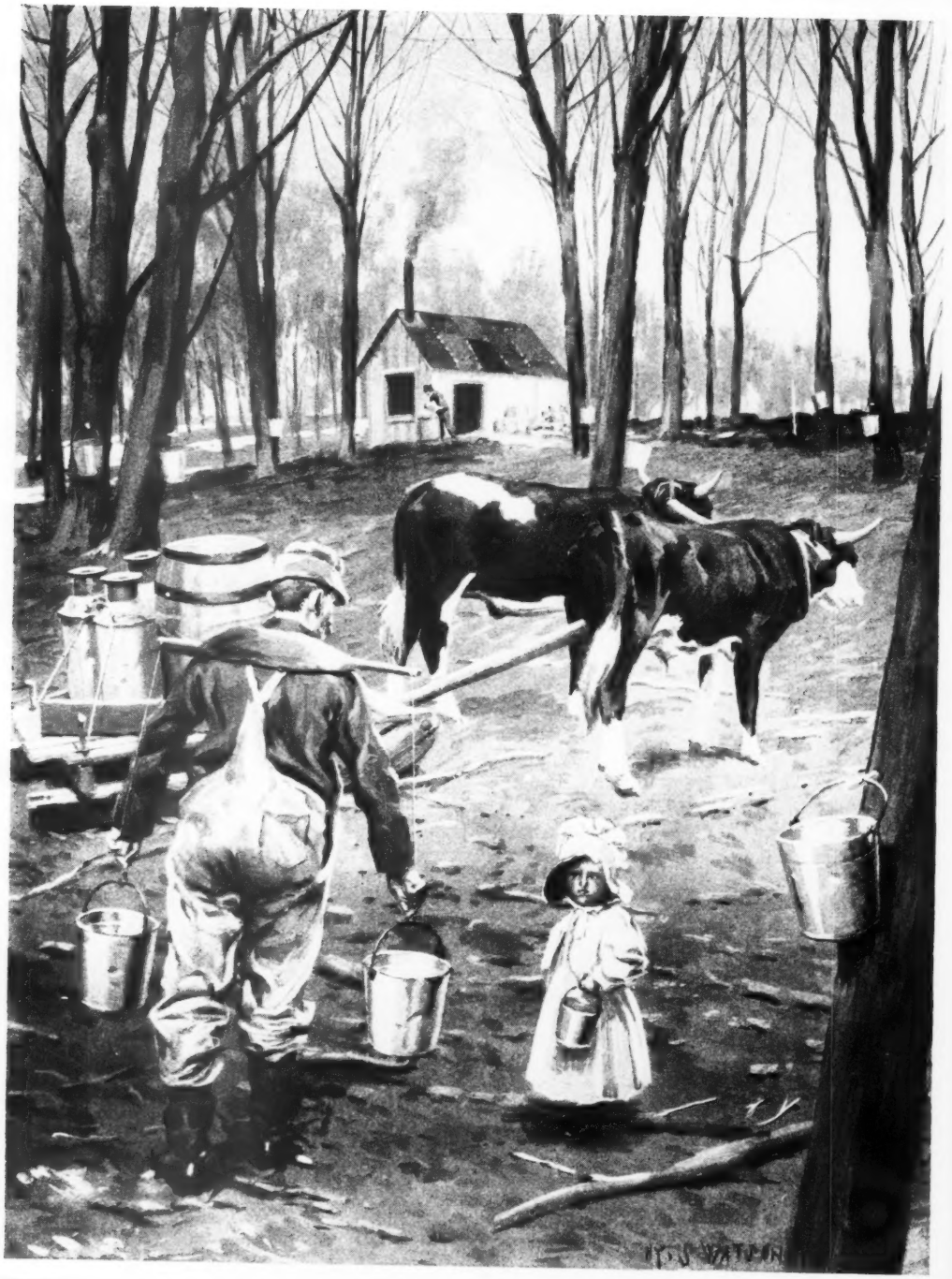
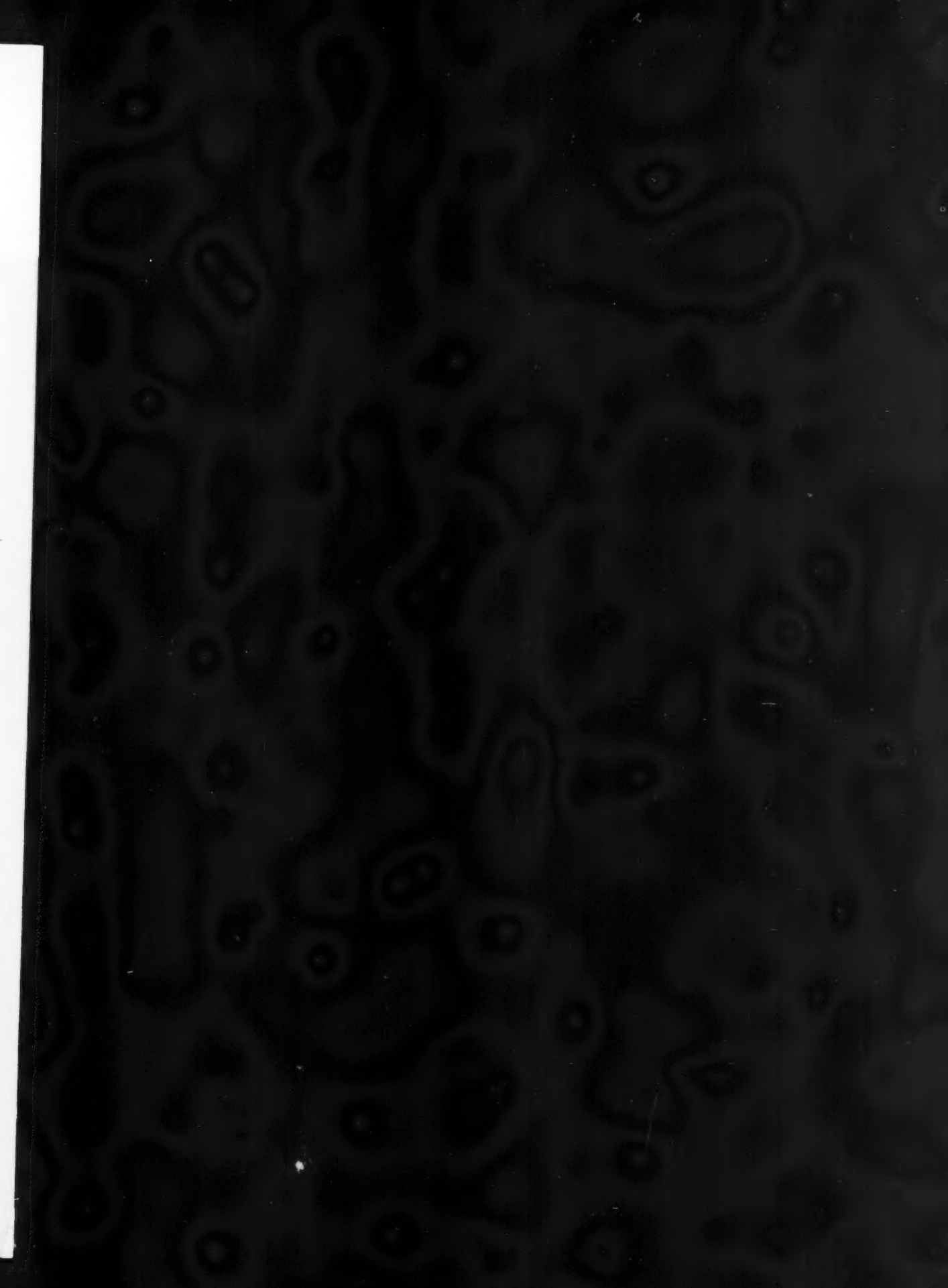
Large bullfrogs normally are extremely wary. Their eyes are keen and their ears sharp. They become almost entirely aquatic. They are difficult to approach unless their attention can be distracted by some nearby *moving* object. This may be only *slightly* smaller than the frog itself and its shape, color or identity doesn't make too much differenc—but all or part of it must be moving.

The frog obviously places all such objects in a single category—food. And it won't be long before it attempts to eat. The object may be too large or too droopy to fit entirely inside the frog's mouth—which occupies all but a negligible part of the head (the brain is peanut-sized and the eyes stick out on top anyway). Many times I have come upon frogs which appeared to be smoking pipes or cigars which turned out to be the legs of other frogs (often still kicking) or the tails of birds or such beasts as jumping mice (which frequent water edges) and young chipmunks. On some of New York State's game farms, big frogs are taboo—they enjoy ducklings. I recall a certain frog which lived in a small pond used as a water hazard on a golf links. One day it scooped up and swallowed a golf ball which rolled slowly by. I remember the ball was a floater and the frog had a hard time trying to hide under water. I do not recall whether the ball, which probably was quite difficult to digest (what with all that rubber and stuff), ever improved the frog's hop.

Anyway, there's no reason I suppose why frogs can't be trained to respond actively to a signal. They tame as readily as snakes. They can be guided, at least for short distances, in pursuit of a piece of cloth or paper dangled from a fish pole. And they live long enough to do *something* bright. Often, bullfrog tadpoles don't become froglets until the third year and three more years may be required before these become adult (with Grade A table size legs). After that, the best record I can find merely says that a bullfrog lived eight years in a zoo.

Much of this stuff has been spread over these pages previously. In fact, I think I once mentioned the man who could call out the frogs. But I always have had the feeling that nobody believed it. Now, of course, I'm delighted that this strangely fascinating picture was found and can be shared here. Perhaps someone's memory can sift back through the years to Pliny Jewell and fill in the missing details—just as he filled in the frogs. —CLAYT SEAGEARS

With extended baton like the leader of a choral group, Pliny Jewell holds 17 big fat wild bullfrogs at attention. But this particular chorus (all bass) isn't anticipating the down beat of the stick. They want the bait dangling at the end of it. Made about 1912, this unforgettable picture may never be matched.



A typical "Sugar Bush"—Forest, Fish & Game Commission, 1904-1905-1906